

STRAIN IN CAREGIVERS OF CHILDREN AND ADOLESCENTS
WITH DEPRESSION: THE ROLE OF SYMPTOM SEVERITY,
COMORBID SYMPTOMS, AND PERCEIVED SOCIAL SUPPORT

By

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To my mother, father, stepmother, stepfather, and loving siblings
You raise me up, so I can stand on mountains

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Past research demonstrates that caring for a youth with a medical or externalizing psychological disorder has significant impact on caregiver well-being. To date, minimal research has examined the impact of caring for youth with internalizing disorders; specifically depression. Depression is a relatively common, recurrent, and impairing disorder among children and adolescents. Examining the impact of depression on caregiver well-being could offer fruitful information to facilitate prevention and treatment initiatives. This study examined the effects of youth depression symptom severity and comorbid symptom severity on caregiver strain in caregivers of children and adolescents with depression. Perceived social support was examined as a potential mediator between youth depression symptom severity, comorbid symptom severity, and caregiver strain.

Participants in the study included 63 youth between 7 and 17 years of age with depression and their caregivers. Measures included a questionnaire on caregiver and youth demographic information, child reported depression symptom severity, caregiver reported levels of strain, caregiver reported levels of perceived social support, caregiver

reported levels of youth comorbid symptoms, and caregiver reported levels of depression.

Two mediational analyses were performed to examine the outcome of caregiver strain in relation to youth depression symptom severity, youth comorbid symptom severity, and the buffering role of perceived social support while accounting for caregiver level of depression and demographic information. No significant association between youth depression symptom severity and caregiver strain was found. However, youth comorbid symptom severity was highly associated with caregiver strain ($\beta=.461$, $p < 0.05$), after controlling for demographic variables and caregiver depression. Perceived social support was a partial mediator of youth comorbid symptom severity and caregiver strain. Youth comorbid symptom severity accounted for 11.7% of the variance in caregiver strain when controlling for demographic variables and caregiver depression.

This study's findings suggest that youth presenting with depression and significant comorbid symptoms have a significant impact on caregiver well-being. Facilitating caregiver access to social supports may benefit caregiver well-being, facilitate youth treatment gains, and improve the family system. Further research is warranted to clarify the relationship between comorbid symptoms, social supports, and caregiver strain; namely, identifying symptoms and supports that have a greater impact on overall caregiver well-being. These findings have significant implications for practitioners working with families of youth with depression; particularly, the fundamental importance of assessing for comorbid conditions when assessing and treating youth with depression. Furthermore, practitioners may find usefulness in briefly

assessing caregiver well-being and overall supports in the environment. Doing so may facilitate treatment outcomes and may help maintain therapeutic gains after treatment.

CHAPTER 1 INTRODUCTION

Raising a child with a disability has a profound effect on the family, requiring family members, generally parents, to assume the role of “caregiver.” Historically, research on caregiving for individuals with disabilities has underscored the strain or burden on parents by the many and often complex demands of caregiving (Brannan Heflinger, & Bickman, 1997). Often times, caregiver strain or burden is the result of conflict arising from issues related to the impairment of the person being cared for, financial strain, constricted social and recreational life, restricted access to services, uncertainty about the future of the disability, and lack of formal or informal support (Pearlin, Semple, Mullan & Skaff, 1990; Redmond & Richardson, 2003; Todd, Shearn, Beyer, & Belce, 1993; Walsh, Conliffe, & Birkbeck, 1993). To date, a wealth of literature exists on the impact of raising youth with physical, medical, and psychological disability on caregiver well-being. However, there is a dearth of research on the impact of raising youth with depression. Considering the prevalence, and potentially debilitating and unpredictable nature of youth depression, this relationship warrants attention. In addition to examining the nature between youth depression and caregiver outcomes, an investigation of variables that buffer the relationship may direct future prevention and intervention initiatives.

One variable that has received considerable attention in its relation to caregiver wellbeing is perceived social support. Perceived social support is the subjective interpretation of the availability of familial, economic, marital, or social supports in times of need (Cohen & Wills, 1985). Numerous studies have demonstrated the positive effects of perceived social support on caregiver outcomes (e.g., Sarason, Sarason,

Potter, & Antoni, 1985). However, no evidence of the meditational role of perceived social support between youth depression and caregiver strain exists. This study intends to delineate the relationship between youth depression and caregiver strain, and, in addition, examine the role that perceived social support plays in buffering the depression-strain link. Furthermore, this study will also examine the impact of comorbid symptom severity on caregiver strain. Comorbid symptoms are frequently associated with depression. Perhaps, the depression strain link may be explained by comorbid symptom severity in addition to depression symptom severity. The forthcoming literature review will define and operationalize depression, caregiver strain, and perceived social support.

Depression

Previously viewed as an adult disorder, youth depression is a relatively contemporary conceptualization. Prior to the 1970s, researchers and clinicians with a psychoanalytic background declared that, in order to be depressed, one must possess a fully developed superego. Psychoanalytic theory affirmed that children lacked a superego; hence, they could not be depressed (Bemporad, 1994). In the early 1970s, Cytryn, McKnew, and Levy (1972) reported that depression may be an underlying source of disruptive behavior in youth, otherwise referred to as “masked.” Masked depression described children who displayed various externalizing behaviors (e.g., acting out) that were thought to “mask” the anguish associated with depression (Glaser, 1967). In the 1970s, depression was finally viewed as a “real” disorder in children. Moreover, this was also the first time that depression could also be reliably assessed in youth populations (Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993).

Depression is a chronic and recurrent condition characterized by a feeling of

marked sadness (American Psychiatric Association, 2000), commonly associated with onset during middle to late adolescence (Burke, Burke, Rae, & Reiger, 1991). Three primary depressive disorders present in children: Major Depressive Disorder (MDD), Dysthymic Disorder (DD), and Depressive Disorder, not otherwise specified (NOS). Major Depressive Disorder is frequently characterized by recurrent episodic symptoms over the life course. To obtain a Major Depressive Disorder diagnosis in children, the following symptoms, including one of the first two, must be apparent: (1) depressed or irritable mood; (2) markedly diminished interest or pleasure in activities; (3) weight or appetite fluctuations; (4) irregular sleep patterns; (5) psychomotor agitation or retardation; (6) fatigue or loss of energy; (7) feelings of worthlessness or excessive guilt; (8) suicidal ideations or a suicide attempt; (9) difficulty with thinking and decision making (American Psychiatric Association, 2000). The symptoms must last for 2 weeks and cause marked impairment in functioning across domains (e.g., school, home, and personal relationships).

A key diagnostic feature of Major Depressive Disorder is the episodic nature of symptoms. The average depressive episode in youth samples generally ranges from 16 to 36 weeks with some studies suggesting residual depressive symptoms 17 months after episode onset (Birmaher et al., 2004; Lewinsohn, Clarke, Seely, & Rhode, 1994). It is not uncommon for youth to experience more than one depressive episode. In fact, Emslie and colleagues (1997) found that more than 90% of youth diagnosed with depression experienced a return of depressive symptoms within a two year period. Additionally, 60% of subjects experienced a recurrence of symptoms within 60 days of symptom remission (Emslie et al., 1997). Indeed, a depressive episode places one at

high risk for the development of future depressive episodes (Simons, Rohde, Kennard, & Robins, 2005).

Also episodic in nature, depression disorder not otherwise specified (NOS) allows the classification of a less severe syndrome of depression. This form of depression is characterized by a decrease in severity and length of depressive episodes. In other words, fewer symptoms are present at a shorter duration (e.g., two weeks). All other facets of depression NOS are analogous to Major Depressive Disorder.

Dysthymic Disorder is a chronic form of depression characterized by a persistent state of sadness. In youth, a diagnosis of Dysthymic Disorder consists of two or more of six key symptoms that are present for at least one year. Symptoms may include poor appetite or overeating, insomnia or hypersomnia, low energy or fatigue, low self-esteem, poor concentration or difficulty making decisions, and feelings of hopelessness (American Psychiatric Association, 2000). Although depressive symptoms are less severe, individuals with Dysthymic Disorder fail to experience a prolonged state of wellness. In other words, a child with Dysthymic Disorder may occasionally present with a good day, though, a good week is unlikely. Many times, early onset Dysthymic Disorder progresses into Major Depressive Disorder later in life. This manifestation is commonly termed “double depression”, and often leads to significant impairments in adolescents and adults (Kovacs, 1997). In fact, depression in childhood or adolescence leads to four times of a greater risk of depression during adulthood (Harrington, Fudge, Rutter, Pickles, & Hill, 1990). Furthermore, as age increases, the severity of symptoms

exacerbates. Symptoms that increase with age may include functional impairment, number of suicide attempts, and lethality of suicide attempts (Birmaher et al., 1996).

Symptom Presentation

It is generally accepted that children, adolescents, and adults present with similar core symptoms of depression (Kaslow, Morris, & Rehm, 1998). The Diagnostic and Statistical Manual of Mental Disorders Fourth Edition – Text Revision (DSM-IV-TR) identifies irritable mood as the primary symptom distinguishing depression in children and adolescents from depression in adults. Furthermore, depressed adolescents are more likely to present with hypersomnia than depressed children (Birmaher et al., 1996). Developmental differences also account for varying symptom presentation. For example, school-age children may present with increased sadness, crying spells, and somatic complaints, whereas adolescents are more likely to present with psychomotor retardation and excessive food consumption (Bostic, Rubin, Prince, & Schlozman, 2005). Depression in children and adolescents is associated with a myriad of maladaptive behaviors including school problems (Bandura, Pastorelli, Barbaranelli, & Caprara, 1999; Roeser, Eccles, & Sameroff, 2000), smoking and drinking (Brown, Lewinsohn, Seeley, & Wagner, 1996) drug use (Sussman, Dent, & Galaif, 1997), promiscuous behaviors (Modrcin-Talbott, Pullen, Zandstra, Ehrenberger, & Muenchen, 1998), and suicidal behaviors (Sussman, Dent, & Galaif, 1997; Marciano & Kazdin, 1994).

Epidemiology

Epidemiological estimates vary greatly by study. The variation generally reflects differences in informants, variation in rates of depression, better instrumentation, and severity of symptoms. For instance, parents report greater rates of depression during

adolescence than reported by adolescents themselves (King et al., 1997). In addition, since World War II each successive generation has experienced higher rates of depression (Burke, Burke, Roe, & Reiger, 1991). Taken together, the literature suggests that childhood depression is a relatively rare disorder. Community based epidemiological studies estimate a prevalence of 1% to 4% (Angold & Rutter, 1992; Cohen et al., 1993; Costello et al., 1996).

The incidence of depression markedly increases after puberty to levels consistent with the adult population. Community based studies estimate depression in 4% to 8% of early adolescents. (Petersen, Compas, Brooks-Gunn, Stemmler, Ey, & Grant, 1993; Shaffer, Fisher, Dulcan, & Davies, 1996). In adolescents 15 to 18 years old, prevalence estimates as high as 14% have been reported (Kessler & Walters, 1998). Rates of depression in clinical samples are markedly higher. For instance, Reynolds (1995) estimated that 16% of all adolescents receiving inpatient psychiatric services present with a primary diagnosis of depression.

Notable differences in prevalence rates exist between genders. Until puberty, depression occurs equally among males and females (Stark, Bronik, Wong, Wells, & Ostrander, 2000). However, at puberty, gender differences become apparent, with females demonstrating depressive symptoms at much higher rates than males. For example, at 13 years of age, females start to experience depression symptoms more frequently than males (Ge, Lorenz, Conger, Elder, & Simmons, 1994). Hankin and Abramson (2001) estimate that at the start of puberty females with depression outnumber males by a 2 to 1 ratio. Moreover, by 15 years of age females experience depression two times that of males. Zahn-Waxler and colleagues (2008) estimate that

adolescent females are diagnosed with depression two to three times more likely than males in community and clinical samples. Perhaps, gender differences exist because females demonstrate an earlier onset of puberty, introspective problem solving styles, pressure to conform to the feminine ideal (e.g., less assertive) and are inclined to adhere to societal influences on gender roles (e.g., body image) (Aube, Fichman, Saltaris, & Koestner, 2000; Nolen-Hoeksema & Girgus, 1994).

The research is inconclusive pertaining to rates of depression in varying socioeconomic statuses (SES). Evidence suggests no difference between SES and a depression diagnosis when depression is viewed as a dichotomous variable (e.g., depressed or not depressed) (Costello et al., 1996). However, when analyzed as a continuous variable, lower SES appears to be associated with higher rates of depression (Gore, Aseltine, & Colton, 1993). For example, in a study of 1208 adolescents, Gore and colleagues examined the impact of life stressors on depressive symptoms. Results suggested that adolescents of both genders from low-SES backgrounds are exposed to much greater life stressors, thus impacting the presentation of depressive symptoms.

Racial and ethnic group differences in respect to depression have been widely studied. Evidence of racial and ethnic differences is equivocal with some studies demonstrating group differences while others do not (e.g., Costello et al., 1996). Most of the research demonstrating racial and ethnic differences has focused almost exclusively on African Americans, Caucasians, and Hispanics. Differences in depression rates among African American and Caucasian youth have been reported in a number of studies with some reporting higher levels of depression in African American

adolescents (e.g., Kistner, David, & White, 2003) and others reporting higher rates in Caucasian adolescents (e.g., McLaughlin, Hilt, & Nolen-Hoeksema, 2007). Hispanic adolescents consistently report higher levels of depression than their Caucasian or African American counterparts (Blazer, Kessler, McGonagle & Swartz, 1994; Roberts, Roberts, & Chen, 1996; Twenge & Nolen-Hoeksema, 2002). Gonzales and colleagues (2006) suggests that the acculturation process may impact the family cohesion and foster conflict. Perhaps through the educational system youth acculturate more rapidly than their immigrant parents. Thus, youth may be more apt to challenge traditional attitudes and beliefs of their cultural roots; ultimately facilitating a discrepancy in acculturation. The discrepancy in acculturation may lead to greater conflict and poorer cohesion possibly inducing emotional distress (Cespedes & Huey, 2008; Gonzales et al., 2006).

Etiology

A number of conceptual models attempt to explain the etiology and maintenance of depression. They include biological perspectives, stress models, behavioral and cognitive behavioral models, and psychoanalytical perspectives. Models relevant to this study are illustrated below.

Biological perspectives of depression have primarily focused on the role of genetics and biochemical abnormalities (e.g., neurotransmitter dysfunction). Substantial evidence points to the genetic influence on depression. One broad review suggested that 50% of the variance in depression is due to genetic influence (Rutter, Silberg, O'Connor, & Simonoff, 1999). In one twin study of depression, Hudziak and colleagues (2000) found that 60% of the variance accounted for genetic influence. Furthermore, according to Hammen and Rudolph (2003), "having a parent with major depression is one of the strongest predictive factors in childhood or

adolescent depression” (p. 246). In general, it appears that depression is attributed to some genetic influence, although the variability of influence varies greatly by symptom presentation and demographic information. Compromises to one’s biochemical pathways may also contribute to depression. For example, evidence from the adult literature suggests that lowered serotonin levels are related to depressive symptomology and suicidal behaviors (Mann, 1999).

As aforementioned, the rates of depression have increased with each successive generation since World War II. These findings point to an underlying environmental influence. Life stress and cognitive behavioral models are two widely used models to explain the environmental influence on depression. According to the life stress model, negative events and major life traumas are risk factors for depression (Rudolph, Hammen, Burge, Lindberg, Herzberg, & Daily, 2000). Numerous studies identify a link between stressful life events and depression in youth (e.g., Compas, Grant, & Ey, 1994). Such links between stressors and depression are evidenced in youth who were abused or neglected (Downey, Feldman, Khuri & Friedman, 1994) or those with caustic and unstable familial environment (Kaslow & Racusin, 1994). Indeed, a combination of parental factors and life stressors place a child or adolescent at high risk for depression (Downey & Walker, 1992). Accordingly, evidence points to the lack of social support as a contributing factor to the maintenance of depression. Depressed youth report lower levels of social support and fewer social resources than their non-depressed peers (Armsden, McCauley, Greenberg, Burke, & Mitchell, 1990). As a result, it has been proposed that social support may influence the relationship between the family’s

negative life events and the maintenance of youth depression (Friedrich, Reams, & Jacobs, 1988; Slavin & Rainer, 1990).

Cognitive factors are integral in the development and maintenance of depression (Beck, 2002). Depressed children and adolescents present with a maladaptive cognitive pattern about themselves and the world they live in (Gencoz, Voelz, Gencoz, Petit, & Joiner, 2001). More specifically, cognitive perceptions of events, learning history, and cognitive distortions impact how a person views themselves, the world, and the future. As a result, distorted thoughts or perceptions may ultimately lead to self-blame, failure, and hopelessness. To illustrate, Rehm's self control model (1977) suggests that depression is the results of the tendency to focus attention on negative rather than positive events, internalize failure, and fail to self reinforce or excessive self punishment. In that vein, behavioral views suggest that depression is the result of a lack of adequate positive reinforcement in the environment (Lewinson, 1974).

As previously mentioned, learning, more specifically learned helplessness, may contribute to depression. Learned helplessness suggests that depression develops in individuals who perceive themselves as having little or no control over rewards and punishments in their environment (Abramson, Seligman, & Teasdale, 1978). Learned helplessness may be a result of internal attributions or attributions of stability. For example, an internal attribution may consist of self deprecating statements such as, "Perhaps my sub-par grades mean that I am not cut out for school." Individuals who perceive an attribution of stability insist that they are the way they are and it will not change. For instance, someone who is doing poorly in school may internalize that they are "stupid and that will never change, so why keep putting forth the effort?" Ultimately

depression can be conceptualized as an interaction between stressful life events (e.g., poor parental relationship) and poor attributions of such events (Abramson, Metalsky, & Alloy, 1989).

Comorbidity

Youth depression often co-occurs with other psychiatric conditions (Hammen & Rudolph, 2003). In fact, depression in youth is more likely to have co-occurring psychopathology than depression in adults (Cantwell, 1992; Rohde, Lewinsohn, & Seeley, 1991). Perhaps, early onset depression is a more severe form of the disorder and presents with significant comorbid conditions not found in adult populations. Furthermore, Rohde et al. suggest that youth presenting with comorbid symptoms are more likely to be referred for treatment, whereas adults often self-refer without a comorbid diagnosis. Comorbidity estimates vary greatly by study. For example, Tamplin et al. (1998) found that 97% of adolescents receiving treatment for depression met diagnostic criteria for another psychiatric disorder such as anxiety disorders, other depressive disorders, behavior disorders, and substance abuse disorders. Essau and colleagues (1999) found that approximately 40.1% of adolescents diagnosed with depression had one additional psychiatric diagnosis. Nearly 18% of adolescents with depression had two or more psychiatric diagnoses. According to the National Comorbidity Survey (Angold & Costello, 1993) anxiety disorders are the most common comorbidity occurring in approximately one-third of all children and adolescents, and more likely evidenced in girls (Joiner, Blalock, & Wagner, 1999). Comorbid anxiety disorder estimates vary greatly with one study identifying 75% of a community sample of having a comorbid anxiety disorder (Kashani, Rosenberg, & Reid, 1989). The type of anxiety disorder tends to vary by age. Whereas younger children commonly present

with separation anxiety, adolescents frequently present with generalized anxiety. Furthermore, one-third of childhood Major Depressive Disorder diagnoses often results in comorbid dysthymia; otherwise called “double depression”. Moreover, approximately 15% to 30% of depressed youth present with conduct or oppositional disorder. Substance abuse is commonly seen in older adolescent females with depression (Rao, Daley, & Hammen, 2000). For instance, in a five year longitudinal study of 17- to 19-year old females with depression, Rao and colleagues (2000) found that 9.6% had an incidence of a substance use disorder.

Comorbid symptoms have a significant impact on treatment and are likely to produce more severe impairment (Essau et al., 1999; Harrington et al., 1990; Mitchell, McCauley, Burke, & Moss, 1988). For example, Essau and colleagues concluded that depression with comorbid diagnoses was linked to increased impairment and distress in youth. Impairment typically includes poor functioning across academic, familial, and social domains including intimate and non-intimate relationships (Harrington et al., 1990; Lewinsohn, Clarke, Seeley, & Rohde, 1994). Moreover, youth diagnosed with depression and a comorbid psychiatric condition are at an increased risk of attempting suicide. With an increase in comorbid symptoms, and subsequent psychopathology, the inclusion of parents is critical. Through parent training and family therapy, parents may play an active role in facilitating an improved symptom presentation.

Treatment

Treatment for child and adolescent depression should be individually planned and take into consideration developmental variables, risk/protective characteristics, and ecological variables. When appropriately referred for treatment, there are several

evidence-based treatment strategies, most notably antidepressant medications (e.g., Fluoxetine; Emslie et al., 1997) and cognitive-behavioral therapy.

Considerable debate occurs in the literature regarding the appropriate first line of treatment for youth depression. Practice recommendations from the American Academy of Child and Adolescent Psychiatry suggest that several factors be considered when determining treatment. Factors may include severity, chronicity, subtype, age of patient, and previous response to treatment (Birmaher et al., 1996). Youth with mild to moderate depression may benefit from initial trials in cognitive behavioral therapy (CBT)(Reinecke, Ryan, & DuBois, 1998). Cognitive behavioral therapy is rooted in social cognitive learning theory. Social cognitive learning theory suggests that human behavior is based on previous learning related to social or interpersonal behaviors. Social learning theory is conceptualized as a network of interrelated constructs that may include social communication, problem solving, operant and classical condition, attributional biases, and schema development. Youth with depression may show a deficit in one or more of aforementioned constructs. For example, an adolescent with depression may make inappropriate attributional biases about positive and negative events. Namely, they may externalize positive events or achievements and internalize negative events (Curry & Craighead, 1990). The focus and goal of CBT is to identify and remediate maladaptive patterns of thinking, affective regulation, and behavioral problem solving (Kaslow, Croft, & Hatcher, 1999). As it pertains to depression, the goal of therapy is to facilitate coping with dysphoric mood and irritability. The Treatment for Adolescents with Depression Study manual (March, 2000) offers five components that are essential CBT intervention pieces for depression in youth; they are: (1) increase

participation in pleasant, mood enhancing activities, (2) increase and improve social interactions, (3) improve conflict resolution and social problem-solving skills, (4) reduce physiological tension or excessive affective arousal, and (5) identify and modify depressive thoughts and attributions (March, 2000). Another widely used CBT approach developed by Stark and colleagues (1991) placed a special emphasis on mood, cognitions, and behaviors, and teach self rewarding techniques for performing difficult behaviors (Stark, Rouse, & Livingston, 1991).

The inclusion of a family component to therapy has demonstrated efficacy. Kolko and colleagues (2000) investigated the differences between familial therapy, CBT, and non-directive supportive therapy. They found that, at two year follow up, components of familial therapy positively impacted the parent-child relationship and family environment. Indeed, CBT-only patients experienced improved cognitive evaluation strategies (e.g., cognitive restructuring); however, there were no effects on the family environment or the parent-child relationship (Kolko et al., 2000). These results reinforce the notion that including family components to CBT should be an essential piece of the therapeutic process. This finding has particular relevance to this study. Perhaps, increased levels of caregiver strain may negatively affect the parent-child dyad, and ultimately interfere with the therapeutic process.

Families of Children with Depression

Familial environmental factors play a significant role, albeit negative or positive, in the maintenance, assessment, and treatment of youth depression (Kaslow, Deering, & Racusin, 1994). Such factors include family cohesion and support, family control, communication patterns, expressed emotion, and attachment. Each of these factors will be reviewed below.

A lack of family cohesion and familial support are common characteristics of families of depressed youth (Cole & McPherson, 1993; Garrison, Jackson, Marsteller, & McKeown, 1990; Patton, Coffey, Posterino, Carlin, & Wolfe, 2001; Sheeber & Sorenson, 1998). Existing evidence supports family cohesion as a protective factor against depression (Cuffe, McKeown, Addy, & Garrison, 2005; Reinherz et al., 1989). Conversely, Stice, Ragan, and Randall (2004) reported that youth perception of low parental support was related to adolescent depression. Perhaps, cohesive parent-child relationships buffer the negative impacts of stress that often contributes to depression (Petersen, Sarigiani, & Kennedy, 1991). Furthermore, lack of familial supports, specifically positive reinforcement and positive affect, are characteristics of families of depressed youth (Cole & McPherson, 1993). Indeed, the complex history of interactions between child and caregiver serve to impact caregiver and child characteristics. Thus, understanding how depressed youth impact caregiver behaviors (i.e., positive reinforcement) and how caregiver behaviors impact current youth functioning seems logical. Further unraveling the interplay between child and caregiver characteristics will be examined in the bidirectional theory section below. To illustrate the impact of functioning child's behavior on caregiver functioning, Cook and colleagues (1990) examined the mother-child dynamics associated with reinforcement practices. When compared to family interactions of schizophrenic patients, parents of depressed children were less likely to be positive and more likely to be negative in their interactions. Interestingly, parents of depressed children who displayed positive communication patterns were more likely to demonstrate positive reinforcement strategies. Hence, a child's behavior may impact the amount of positive reinforcement a child receives (Cook

et al., 1990). Furthermore, families with increased criticism and negative communication patterns tend to play a role in the onset, maintenance, and recurrence of depression in children and adolescents (Silk et al., 2009).

When compared to their non-depressed peers, depressed youth report that their parents are overly controlling and that they feel excluded in familial decision making processes (Kaslow, Deering, & Racusin, 1994). Studies appear to corroborate these reports. For example, Dadds et al. (1992) identified that parents of depressed youth are more likely to use coercion than are parents of non-depressed youth. Furthermore, when comparing parents of depressed youth to parents of anxious youth, Amanat and Butler (1984) suggested that parents of depressed youth are more likely to be dominant, controlling, and exclude their children from decision making. Indeed, this type of parenting style may foster a sense of helplessness in children (Amanat & Butler, 1994). Furthermore, family environments including high discord, low cohesion, and low levels of affection contribute to youth pathology, including depression (Nomura, Wicramarante, Warner, & Weissman, 2002). Parental discipline strategies may also put youth at risk for depression (Kim & Ge, 2000). Parents of depressed children report poor communication patterns. Namely, parents and children report less communication than non-depressed controls (Puig-Antich et al., 1985). Furthermore, when there is evidence of communication, it is characterized as hostile, tense, and punitive (Puig-Antich et al., 1985). Dietz et al. (2008) examined the familial communication patterns of families of depressed youth, youth at-risk for depression, and healthy controls. The results suggest that parents and their depressed youth display more negativity and less positivity in their communication patterns as compared to youth at high risk for depression and healthy

controls. Moreover, such communication patterns may persist even after recovery of acute depressive symptoms.

Depressed youth report less secure parental attachment than their non-depressed peers (Hammen, Burge, & Stansbury, 1990). Severity of depression is commonly associated with security of attachment to parent (Cummings & Cicchetti, 1990; Kobak, Sudler, & Gamble, 1992). Demographic characteristics serve to buffer the relationship between attachment and depression. For example, females, those with increased life stress, and caustic parental behavior all place their children at an increased risk of depression. Further support for the attachment as risk-factor hypothesis was identified in a study of 168 young adolescents, and their perceptions of maternal availability and youth support-seeking. According to Shirk, Gudmundsen, and Burwell (2005), parental availability was critical in times of high stress. Conversely, in low-stress times, maternal accessibility was not as related to risk for depression. The findings by Shirk et al. (2005) are consistent with the notion that if stressed adolescents perceive their caregivers to be unavailable, they may be increasingly vulnerable to emotional distress and subsequently depression.

For the purposes of this study, it is essential to place special emphasis on the bi-directional approach of familial factors on depression. In fact, evidence exists suggesting that some factors (e.g., lack of positive reinforcement) are parental responses to child behavior. Indeed, the bidirectional link will be detailed later in this review.

Summary

Childhood and adolescent depression is a prevalent, chronic, and debilitating condition characterized by the waxing and waning of symptoms. Youth depression is

commonly comorbid with other psychiatric conditions that may exacerbate psychosocial, academic, and familial functioning. Although there is no clear factor that contributes to the etiology of depression, the literature suggests that 50-60% of the variance can be explained by genetic factors. Depression is often treated by therapeutic or medicinal interventions. In children and adolescents, therapeutic interventions (e.g., cognitive behavioral therapy) are recommended as the first line of treatment. Inclusion of the family in the therapeutic process is an essential and effective piece of therapy.

Caregiver Strain

Caring for a child in and of itself is a stressful experience (Crnic & Greenberg, 1990). However, caring for a child with a disability poses an additional strain for which many parents and caregivers are not adequately prepared. Caring for a child with a disability is accompanied by increased medical care costs (Ireys, Anderson, Shaffer, & Neff, 1997) and increased time devoted to caregiving (Breslau, Staruch, & Mortimer, 1982). Over the last 20 years, a wealth of research has addressed the familial or caregiver outcomes of caring for a family member with a disability. The original caregiver well-being research examined elderly Alzheimer's disease patients (George & Gwyther, 1986; Poulshock & Deimling, 1984), and adults with mental illness (Thompson & Doll, 1982). These works focused primarily on the effects of an adult child caring for a disabled parent. Results from adult research supports the notion that illness is directly associated with negative caregiver outcomes (Baronet, 1999). The caregiver outcomes literature has since expanded its focus to include research on caregivers of children with physical, medical, and psychological disabilities. The maladaptive outcomes associated with caring for a child with a disability are often considered determinants of dysfunctional parenting (Abidin, 1992; Ostberg & Hagekull, 2000). The following

examination will review caregiver outcomes associated with caring for a child or adolescent with a disability; albeit physical, psychological, or medical in nature. The review will define the caregiver strain construct and examine the differences between caregiver strain and parental psychological distress. Due to the dearth of research on caregiver strain, conceptually similar constructs (e.g., parental stress) will also be reviewed.

Psychological distress is often referenced in the social science literature. Often times, however, psychological distress lacks a lucid articulation and is obfuscated with strain, stress, and distress (Ridner, 2004). For purposes of this study defining and distinguishing between concepts is warranted.

The term stress was first introduced by Hans Selye in the 1920s and was defined as the “nonspecific response of the body to any demand” (Selye, 1974, p. 14). Selye defined a stressor as the cause of stress. Stress is viewed on a continuum ranging from non-impairing to impairing. In other words, stress is not necessarily harmful, and is a common reaction to life events.

Distress is conceptualized as the physical or mental anguish or suffering (Ridner, 2004). By extension, psychological distress refers to the “general concept of maladaptive psychological functioning in the face of stressful life events” (Abeloff, 2000, p. 556). Psychological distress is defined by four key attributes: perceived inability to effectively cope with a situation, change in emotional status, discomfort, communication of discomfort, and harm (Ridner, 2004).

Like stress and distress, strain is conceptualized as the impact of a stressor. For the most part, strain, stress, and distress are used almost interchangeably in the

research literature (e.g., Bussing et al., 2003). Respective fields prefer the use of a specific term. For example, the nursing field advises against the use of strain in their research literature (e.g., Knapp, 1988); whereas the behavioral science literature accepts, and in some cases recommends, the use of strain (e.g., Brannan & Heflinger, 2001). A further analysis of caregiver strain and parental distress follows.

The operationalization and conceptualization of caregiver strain has been muddled by the inconsistent use of the term in the research literature. The term caregiver strain has been used almost interchangeably with the terms “caregiver burden” and “parental distress” across research studies. Furthermore, the way in which caregiver strain has been measured varies greatly by study. For example, caregiver strain has been used as a predictor variable contributing to psychological distress and as an outcome variable. Historically, definitional and operational ambiguity of caregiver strain has significantly confounded the advancement of the caregiver outcomes literature. Brannan and Heflinger (2001) attempted to explain the role of caregiver strain in the research literature by delineating the differences between caregiver strain and psychological distress through a conceptual model. Their model sought to identify correlates of caregiver strain and psychological distress. Caregiver strain was measured via the Caregiver Strain Questionnaire (Brannan, Heflinger, & Bickman, 1997) and psychological distress was measured via the Brief Symptom Inventory (Derogatis & Melisaratos, 1983). Overall, their study suggested that child related symptoms were the best predictor of caregiver strain while other life stressors were the best predictor of overall psychological distress. They noted that caregiver strain and caregiver psychological distress are “related but distinct constructs with different correlates”

(Brannan & Heflinger, 2001, p. 414). Furthermore, the authors indicated that studies examining the impact of child emotional behavioral problems on families and studies that evaluate familial support services should utilize caregiver strain indices over psychological distress measures. A further examination of caregiver strain can be found below.

Caregiver strain, traditionally referred to as “burden of care”, “family burden of care”, and “caregiver burden”, is defined as the “demands, responsibilities, difficulties, and negative psychic consequences of caring for relatives with special needs”.

(Brannan & Heflinger, 1997, p. 213). The strain experienced by caregivers of individuals with disabilities takes on many forms. Therefore it is no surprise that caregiver strain is conceptualized into multiple dimensions.

Brannan, Heflinger and Bickman (1997) divide caregiver strain into three separate dimensions: objective strain, subjective externalized strain, and subjective internalized strain. Objective strain is defined as the degree to which noticeable negative incidents, linked to the individual’s condition, negatively affect the family unit. This may include trouble with friends, neighbors, interfamilial problems, routines, and social activities. Subjective externalized strain is defined as negative feelings about the child’s problems. For instance, a caregiver may feel anger, resentment, or embarrassment about their loved one’s condition. Lastly, subjective internalized strain entails inwardly directed negative feelings, such as concern, shame, depression, and fatigue.

While subjective and objective caregiver strain have similar underpinnings, different factors are predictive of each type of strain (Montgomery, Gonyea, &

Hooyman, 1985). For example, Montgomery and colleagues concluded that caregiver age and income are the best predictors of subjective strain. Further, responsibilities that confine caregivers to time (e.g., numerous doctor appointments) or geographic regions were the best predictors of objective burden. According to Brannan and colleagues (1997) families caring for children with disabilities tend to report higher levels of subjective strain and lower levels of objective strain when compared to families caring for adults. Some researchers, however, challenge the notion that objective strain is in fact objective. As Sales (2003) indicates, “objective burden rely on a family member’s self report of the extent of their caregiving activities, which may be far from objective” (p. 35). In response to this limitation, researchers have proposed more objective categories for strain including defining strain in terms of the disorder (Maurin & Boyd, 1990) or types of impairment (Poulshock & Deimling, 1984). For example, a child displaying maladaptive behaviors in public may inhibit the caregiver’s social activities more so than a child with non-disruptive behaviors.

Several factors may contribute to caregiver strain, including financial strain, familial conflict, poor family life, adverse physical and mental effects on caregiver, and limitations on time, personal freedom, and privacy. (Taylor-Richardson, Heflinger, & Brown, 2006). Caregiver strain may lead to deleterious effects on the family unit; which may interfere with an individuals’ responsibility to carry out daily tasks. In fact, Whitley et al., (2001) demonstrated that caregiver strain may exacerbate or potentially create emotional and health problems for the caregiver. Consequently, caregiver strain may have significant implications on mental health service trajectory of the individual with a disability (Brannan, Heflinger, & Foster, 2003; Brannan & Heflinger, 2005).

The influence of caregiver strain on children's mental health services is significant. One study demonstrated that higher levels of caregiver strain were positively associated with professional mental health service use (Angold, Messer, Stangl, Farmer, Costello, & Burns, 1998). Angold and colleagues (1998) divided caregivers of youth with and without a psychiatric disorder into four groups: no diagnosis and no impairment, diagnosis only, impairment only, and diagnosis and impairment. Overall, caregivers with strain sought professional mental health services far more often than caregivers without strain. In fact, when a child was diagnosed with a psychiatric disorder and psychosocial impairment, caregivers who experienced strain were nearly three times more likely to seek professional mental health services than caregivers without strain. Some studies suggest, however, that strained caregivers often make therapeutic decisions that may not be in the best interest of their child. For example, in an investigation of factors that predicted child mental health services, Brannan et al. (2003) found that caregiver strain, specifically objective strain, increases the probability that a child will receive a more restrictive therapeutic environment, experience no gaps in care, and incur higher service costs. Further, higher levels of caregiver strain are associated with an increased chance of youth being placed in a more restrictive level of psychiatric care at an earlier age. (Bickman, Foster, & Lambert, 1996; Fite, Stoppelbein, & Greening, 2008). Indeed, when controlling for internalizing and externalizing behavior problem, Fite et al. identified that parenting stress results in a younger age of their youth's admission to a psychiatric inpatient facility. Undoubtedly, hospitalization is a key component of a system of care model (Stroul & Goldman, 1990). However, due to ideological sentiment (MacDonald, 1994) and adherence to a least restrictive

environment of care philosophy, hospitalization should be considered a last resort for the most severe cases (Bickman et al., 1996).

The Bidirectional Model

As described in previous sections, just as a caregiver's parenting style (e.g., overly controlling) may influence child behavior; a child's actions may also influence caregiver behavior (e.g., avoiding interactions). Identifying the mechanism and etiology of caregiver outcomes is often times an arduous task. This debate is revealed even more so with research on caring for a child or adolescent with a psychiatric disorder (e.g., depression, anxiety disorders, and oppositional/conduct disorders). Indeed, it is quite possible that caregiver dysfunction impacts child symptomology which subsequently exacerbates caregiver dysfunction. While a wealth of literature demonstrates the impact of youth symptoms on caregiver functioning, identifying if child symptoms were impacted by initial caregiver dysfunction is much less understood. This is an issue that is an inherent flaw in caregiver outcomes research related to internalizing and externalizing disorders. However, the recent development of measurements that gauge the influence of child behavior on caregiver outcomes and carefully controlled studies, may be the closest researchers can come to identifying a pure link between child behavior and caregiver outcomes. Nonetheless, this is clearly an issue that warrants considerable attention in the research literature. Findings from this line of research may ultimately lead to prevention and treatment initiatives that are tailored to better serve youth with psychiatric conditions and their strained caregiver. Curiosity in identifying a child to caregiver link originated in the bidirectional literature. In the subsequent paragraphs, theories and research related to the bidirectional model will be reviewed.

Contrary to earlier psychiatric research that focused on the effects of caregiver psychopathology on child symptoms, in the past 15 years research has examined the impact of child disability on caregiver outcomes (Marsh, 1996; Schene, Tessler, & Gamache, 1996). Initially, factors intrinsic to the caregiver were viewed as risk factors for child outcomes (e.g., Hammen, Gordon, Burge & Adrian, 1987). Indeed it took a paradigm shift to acknowledge the influence that caring for a child with a disability has on caregiver outcomes (Floyd & Gallagher, 1997). A key factor in the emergence of caregiver outcome studies was the acknowledgement of the strong bidirectional influences of the child-caregiver dyad (Hammen, Burge, & Stansbury, 1990).

The bidirectional nature of the parent-child dyad was written extensively about in the works of Hinde (1979). Hinde (1979) proposed three features that are essential to the bidirectional model: time dimension, contribution of parent and child, and expectancies. Hinde referred to time dimensions as the defining criteria of this model. Pursuant to Hinde's model, "time dimensions" supports the assumption that relationships are the byproduct of the accumulation of two people interacting over time, albeit positive or negative. As such, research that focuses solely on the caregivers influence on child problems, is neglecting the foundational premise of a social relationship. Consequently, just as the parent can contribute to child pathology, the child may indeed contribute to parent pathology. The last feature of Hinde's model, expectancies, is constructed from the accumulation of previous interactions. In theory, after repeated discourse the child and parent develop expectations to guide future interactions (Lollis & Kuczynski, 1997). Lollis and Kuczynski (1997) point out that "expectations" are a noteworthy feature given that they structure how the child and

parent make behavioral and cognitive adjustments. The underpinnings of Lollis and Kucznski's claim are rooted in attachment theory. For example, a child classified as "avoidant" or "anxious" (Ainsworth, Blehar, Waters & Wall, 1978) is thought to resonate from parental behavior that occurred during stressful or ambiguous situations. Just as the child develops "expectancies" of parental behavior in certain situations, parents too may develop expectancies of child behavior. Perhaps a parent's cognitive and behavioral adjustments to the child's behavior may be a foundation for the onset of stress and strain.

The bidirectionality model has received increasing attention in the literature. The development of measures investigating experiences of caregivers caring for individuals with disabilities has facilitated bidirectional research. For example, in a study of 259 caregivers of children with a severe emotional or behavioral disorder, McDonald et al. (1996) reported that 62% of caregivers acknowledged that their child's behavior was their most burdensome experience in the past year. The bidirectional model of interactions is a central piece of the current study. Clearly, the genetic and environmental factors influence of parental factors on childhood and adolescent depression. However, support for the bidirectional model, and the lack of research examining the caring for a child or adolescent with depression has on family functioning, exposes a considerable gap in the literature.

Theoretical Framework: The Double ABCX Model

The early caregiving literature demonstrated two substantial methodological confounds: inconsistent theoretical frameworks and poor operational definitions (Baronet, 1997; Maurin & Boyd, 1990). A theoretical framework is important because it acts as a guide for future research. Moreover, as earlier mentioned, caregiver stress,

strain, and burden are used almost interchangeably adding to clarity issues in the literature. For example, caregiver strain has been used in place of the term “stressor” to identify factors that cause stress and used as a dependent variable as the result of a psychological, physical, or behavioral response to stressors. The following section will review a widely used family stress framework that will be used as a guide for this study.

Family stress research has been predominantly guided by Hill’s ABCX family crisis model (Hill, 1949). Hill’s ABCX model attempted to explain how variables account for familial differences in reaction to stress. The ABCX model is conceptualized as follows: a stressor event (A), interacts with familial resources (B), and familial perceptions of the event (C), to produce or prevent crisis (X). In essence, the ABCX model describes how families respond to life stressors, while considering interrelated ecological variables that influence family functioning (McCubbin & Patterson, 1983). McCubbin and Patterson (1983) have since expanded upon the original ABCX model to include four additional factors that contribute to familial adjustment. This extrapolated model, the Double ABCX model, underscores the need to look at the severity of the stressor and “pile-up” of demands and additional life stressors (aA), how families apply resources in order to manage stressors (bB), the manipulations that families make in their perceptions of the situation to facilitate coping (cC), and the adaption and strain the family endures (xX) (McCubbin & Patterson, 1983). In other words, the double ABCX model assumes that a family’s adjustment to a crisis, such as acquiring a disability, is a function of coping strategies families use before, during, and after a crisis (McCubbin & Patterson, 1983). This model suggests that the family can influence, and be influenced by the child’s emotional and behavioral problems (Brannan, Heflinger, & Foster, 2003).

A key piece of the double ABCX model is understanding how the family responds to pre- and post- crisis variables. Thus, if the family views stressors or crises in a positive way, they are more likely to respond favorably and subsequently manage the stressor event. The double ABCX has been utilized to explain family adjustment in families of children with autism (Bristol, 1987; Pakenham, Samios, & Sofronoff, 2005), intellectual impairment (Orr, Cameron, & Day., 1991), and developmental disabilities (Reddon, McDonald, & Kysela, 1992). This model has not been previously applied to depression or other internalizing disorders. The following will review the specific constructs of the double ABCX model.

The Stressor Element (aA)

Caregivers caring for a child with an emotional disability experience a myriad of stressors. According to McCubbin and Patterson (1983) a stressor is defined as a “life event or transition impacting upon the family unit which produces, or has the potential of producing, change in the family social system” (p. 8). Stressors commonly lead to hardships on the family. An example of a family hardship may be the need to find additional employment to meet the financial needs of caring for a youth with a disability. Stressors may arise from the child’s symptoms and attending and adhering to treatment protocols. In addition, family members face life events irrespective of the child’s presenting problem. Life events may present in a positive or negative way. For instance, negative events may include divorce or recent unemployment, and positive events may include a raise in pay or the birth of a new family member. According to Brannan et al. (2003) stressors are said to “have an additive effect, resulting in a pile-up of stressful events” (p. 78). The “pile-up” of stressors and strains significantly influences how the family manages daily life tasks and how they use mental health services (Brannan et al.,

2003). For example, research has demonstrated that higher pile-up demands are associated with poorer maternal adjustment in studies of mothers with children with special needs (Bristol, 1987; Reddon et al., 1992).

Family Resources (bB)

Family resources are the first of the proposed mediational variables in the Double ABCX model. Resources may include individual factors (e.g., psychological well being) and familial factors (e.g., a healthy marriage) and often include social support (e.g., supportive peer networks), material resources (e.g., financial success), and positive family functioning (e.g., problem solving skills). The use of resources, or lack thereof, may have a significant impact on caregiver functioning. For example, caregivers with financial success may be able to acquire the highest quality of treatment, while less financial well-off may struggle to pay for specialty services that insurance fails to cover (Brannan et al., 2003). In addition, caregivers with a strong peer support network may benefit from advice and moral support; whereas those with a weaker support network may not. Moreover, McCubbin and Patterson (1983) indicated that social support is the most influential family factor.

Perceptions of the Stressor (cC)

Although not investigated in this study, factor cC has a significant impact on outcomes related to the stressor. Factor cC attempts to explain how subjective familial perceptions of crises lead to strain. Factor cC includes perceptions of the initial stressor, life event stressors, resources, and views of what may remediate the stress. More closely related to this study, perceptions may significantly alter the appraisals related to the seriousness, etiology, and prognosis of the child's disability, and attitudes towards mental health services. Differences between positive and negative perceptions

of a situation may be the difference between minimal familial stress and family turmoil (McCubbin & Patterson, 1983). For example, a positive perception of a disability's prognosis may decrease stress and increase hope; whereas negative perceptions of a disability's prognosis may lead to increased levels of uncertainty and increased stress levels. Furthermore, perceptions are often linked to cultural, gender, and age variables (Brannan, Heflinger, & Foster, 2003).

Adaption or Crisis (xX)

Factor xX is the results of the interaction between stressor event, family resources and perceptions of the situation. Depending on the interaction between aA, bB, and cC dictates whether a family will adapt or go into crisis. The combination of the pile-up of family demands and the lack of cognitive and concrete resources to meet those demands often leads to crisis (Boss & Mulligan, 2003). One significant outcomes of crisis is caregiver strain. According to this model, caregiver strain may result from deficits in familial resources (e.g., financial strain, disrupted family and social life, and lack of social supports) and maladaptive perceptions of the stressor situation (Brannan, Heflinger, & Foster, 2003).

Strain and Caregiver Outcomes

An abundance of research examines caregiver outcomes related to caring for a child with a disability. Specifically, past research has focused on caregivers of children with emotional behavioral disorders, attention deficit hyperactivity disorder, pediatric illness, traumatic brain injury, hepatitis, and various cognitive and developmental disabilities (e.g., cerebral palsy and autism). A consistent problem with the caregiver outcome literature is that definitions of "stress" and "strain" are inconsistent and are used interchangeably across disciplines. Research in the area of caregiver strain in

families of children with depression is still in the primitive stages. Since few published research studies address strain in caregivers of children and adolescents with depression, research investigating families with various disabilities offered a foundation for the predictions made in the present study and will be reviewed below.

In a longitudinal study of 164 families of children with emotional-behavioral disorders, Early, Gregoire, and McDonald (2002) demonstrated that children had a significant effect on caregiver well-being. Youth with emotional-behavioral problems and their caregivers were studied at two time periods. The goal was to identify the stability of youth symptoms and caregiver stressors over time. Results suggested no decreases in child symptoms or caregiver stress levels at 12-18 month follow ups. The authors concluded that “caregivers do not become accustomed to their children’s problems and experience less burden, as the well-being scores are stable over the two time periods” (p. 387). In other words, without intervention one would expect caregiver well being to continue to remain static or diminish over time.

Kenny and McGilloway (2007) examined caregiver strain in caregivers of youth with mental handicaps. Approximately 44% of children had a coexisting physical disability. Based on both qualitative and quantitative data, results suggest that caregivers were significantly impacted by their child’s disability. For example, 72% of caregivers indicated that they were worried about their child’s future, 31% felt tired or strained by their child’s disability, and 21% of caregivers felt that their child’s disability had taken a toll on their family. Qualitative reports corroborated quantitative findings. For instance, caregivers reportedly experienced high levels of emotional strain and acknowledged the need for and benefit from familial and spousal support. This study

had a number of limitations. Along with the relatively small sample size ($n = 32$), the preponderance of subjects were female (75%). Furthermore, sampling procedures are drawn into question considering that participants were reportedly acquaintances with the first author. Perhaps, this sampling procedure may have had significant validity implications.

Brehaut and colleagues (2004) investigated caregiver outcomes in 468 primary caregivers of children with cerebral palsy and a control, non-cerebral palsy group. Results suggested that caregivers of children with cerebral palsy had significantly lower psychological health and more physical health problems than a control group. Psychological and physical health problems included: greater levels of distress, emotional problems, cognitive problems, back discomfort, migraines, stomach and intestinal ulcers, and arthritis/rheumatism. Furthermore, while controlling for educational levels, caregivers of children with cerebral palsy had significantly lower income than control. The authors suggest that caring for a child with a disability contributes to financial strain due to the decreased availability to work for pay (Brehaut et al., 2004).

Angold and colleagues (1998) investigated caregiver strain in caretakers of youth with a DSM-III-R Axis 1 psychiatric diagnosis. A sample consisting of 1015 9-11 and 13 year olds and their caregivers were recruited for this study. Results demonstrated that approximately 10% of caregivers reported strain from their child's symptomology. Caregivers were subsequently placed into four groups based on child's disorder: no diagnosis no impairment, diagnosis only, impairment only, and diagnosis and impairment. Approximately 2 out of 5 caregivers in the diagnosis and impairment group experienced strain. Interestingly, caregivers in the diagnosis only and impairment only

had commensurate levels of strain (16.8% and 17.8%, respectively). In other words, a mere diagnosis, without any impairment, is enough to illicit increased levels of caregiver strain (Angold, Messer, Stangl, Farmer, Costello, & Burns, 1998).

In the past 15 years, scant data exists examining well being associated with caring for an adult with depression. Overall, the literature suggests that caregivers caring for an adult with depression experience considerable strain. The lack of empirical attention presumably lies in how the disorder is conceptualized. For instance, Chakrabarti et al. (1992) suggested that unlike schizophrenia, the episodic nature of depression manifests a perception that affective disorders lacked chronicity, and thus, it was unlikely that symptoms affected caregivers. The few studies examining this relationship have suggested otherwise. For example, Chakrabarti et al. (1992) examined the burden experienced by family members of 90 adult patients with major depression and bi-polar disorder. The findings suggested that caregivers of both groups experienced considerable strain. Factors associated with increased strain were length of illness, level of impairment, severity of symptoms, and age of the patient. Although the aforementioned study provided initial evidence into the depression/caregiver outcomes link, there were methodological flaws; namely, poor operational definitions of caregiver strain and poorly validated measures.

Van Wijngaarden and colleagues (2004) addressed limitations in the Chakrabarti et al. study in a study of depression and caregiver outcomes in a Dutch population. Two hundred and sixty spouses and relatives of depressed adults filled out questionnaires measuring caregiver consequences. The patient group consisted of three subsamples: an inpatient group, an acute outpatient group who recently began treatment, and a non

acute outpatient group who were involved in treatment for more than two months. Overall, results indicated that caregivers of depressed adults often experience feelings of worry, burden, disruption in daily routines, and interpersonal stressors (van Wijngaarden, Schene, & Koeter, 2004). This study further demonstrated that symptom severity was directly related to caregiver consequences. That is, caregivers of patients in the inpatient and acute outpatient groups experienced far greater levels of strain than the non-acute outpatient group (van Wijngaarden, Schene, & Koeter, 2004).

The limited empirical research on caregiver outcomes in families of children with depression includes a study by Tan and Rey (2005) that investigated the stress experienced by Malaysian caregivers caring for a child with depression and caregivers of a child without depression. Tan and Rey evidenced that mothers of children with depression experienced more stress directly related to caring for a child with depression than did caregivers in the control condition. Although Tan and Rey demonstrated the deleterious outcomes of caring for a child with depression as compared to a control condition, there were many limitations in their research. First, depression was coded as a dichotomous variable. In other words, the child was coded as either having depression or not having depression. Clearly, depression can be conceptualized as a continuous variable with varying degrees of symptom severity. Moreover, as mentioned above, depression is highly comorbid with various other psychiatric conditions (e.g., anxiety disorders, substance abuse, and conduct disorder). Tan and Rey failed to acknowledge the interrelatedness between depression and other psychiatric conditions. Without controlling for comorbid conditions, it is difficult to determine whether

depression or other variables (e.g., oppositional behaviors) were attributed to the elevated levels of caregiver stress.

Variables Associated with Caregiver Strain

In order to identify clear relationships between variables of interest and caregiver strain, it is important to identify variables that are associated with caregiver strain. This review will discuss three broad categories: sociodemographic characteristics, illness related characteristics, and psychological resources.

The association between caregiver strain and sociodemographic variables has been studied extensively. Sociodemographic variables often include age, gender, ethnicity, education, family income, relationship to ill relative, and ill relative's gender. The relationship between caregiver's age and strain has yielded mixed results. Some have suggested that younger caregivers demonstrated higher levels of strain (Horwitz & Reinhard, 1995; Cain & Newsome Wicks, 2000). For example, a study on caregivers of individuals with Chronic Obstructive Pulmonary Disease (COPD) found that caregivers younger than 55 years old experienced significantly more burden than those older than 55 years. Research investigating the role of gender on caregiver strain is conflicting. Cain and Newsome Wicks (2000) found no gender differences in the degree of strain in caregivers of individuals with COPD. Contrary to these findings, some suggest that women experience more strain than men (Miller, 1990; van den Heuvel et al., 2001). It must be noted, however, that most gender studies have been conducted with caregivers of adults. Gender studies are scant in the child and adolescent literature. Studies evaluating the relationship of ethnicity on caregiver strain suggest that being Caucasian is associated with more strain (Horwitz & Reinhard, 1995). In a study of youth with behavioral problems, non-hispanic whites demonstrated significantly higher levels of

strain than African-Americans (McCabe, Yeh, Lau, Garland, & Hough, 2003). Research on the influence of income on caregiver strain is lacking. Baldwin et al. (1995) investigated the association between caregiver strain and income in a sample of caregivers of youth with ADHD. They found that lower family income accounted for 42% of the variance in caregiver strain.

Past research demonstrates the deleterious effects of increased symptom severity on caregiver levels of well-being. The following section will review the literature on the impact of primary diagnosis symptom severity and comorbid symptom severity on caregiver strain. Overall the child and adult literature suggest that symptom severity of comorbid diagnoses significantly contribute to caregiver strain. In an examination of the relationship between rheumatoid arthritis and caregiver strain, Beckham et al. (1995) found that disease severity explained a significant proportion of variance in caregiver strain. Wilkinson and colleagues (2001) examined the familial impact of caring for a child with Tourette's Syndrome. Results from 100 families demonstrated that caregivers of children with Tourette's Syndrome experience significantly more strain from comorbid, Attention Deficit Hyperactivity Disorder, Obsessive Compulsive Disorder, Conduct Disorder, and Oppositional Defiant Disorder diagnoses. Furthermore, this study concluded that scores on the Tourette Disorder Scale were positively associated with scores on the Family Impact Scale, suggesting that increases in symptom severity lead to deleterious effects on the family.

Schoeder and Remer (2007) also examined the relationship between symptom severity and comorbid diagnoses on caregiver strain. Consistent with Wilkinson et al., (2001), Schoeder and Remer found that symptom severity positively associated with

caregiver strain. Moreover, when grouped dichotomously, children with a comorbid diagnosis significantly predicted caregiver strain as compared to children without a comorbid diagnosis. Furthermore, a comorbid diagnosis of oppositional defiant disorder and anxiety disorders were significantly associated with greater caregiver strain.

Brennan and Poertner (1997) examined survey data from 243 caregivers in North Carolina. They concluded that caregiver strain was significantly attributed to the child's levels of internalizing and externalizing problems. Others have also demonstrated the strength of the relationship between child's symptom severity and caregiver strain (Angold et al., 1998; Brannan & Heflinger, 2001). To date, no study has examined the relationship between child symptom severity or co-morbid problems and strain in caregivers of youth with depression.

Psychological resources have been shown to negatively associate with caregiver outcomes (Schoeder & Remer, 2007; Turner & Marino, 1994; van den Heuvel et al., 2001). Psychological resources may include coping strategies and social support. Schoeder and Remer (2007) found that perceived social support accounted for 11% of the variance in caregiver strain. An in-depth review of the role of social support on caregiver outcomes is detailed below.

Summary

Mounting evidence exists demonstrating the deleterious caregiver outcomes associated with caring for a child with a physical, cognitive, and psychological disability. The research suggests that child symptom severity and comorbidities serve to exacerbate caregiver strain. The consequences of caregiver strain extend beyond the caregiver and may negatively impact the type of services their child receives.

Furthermore, theoretical models such as the Double ABCX model serve as a guide for caregiver strain research.

Social Support

Given the poor outcomes that coincide with caring for youth with disabilities, it is important that professionals and caregivers identify variables that ameliorate maladaptive functioning. One such variable is social support. Over the past 30 years, there has been an abundance of evidence delineating the positive effects of social support on health variables; specifically disease etiology, health maintenance, mortality, psychological well-being and stress (Cohen & Wills, 1985; Roberts, Cox, Shannon, & Wells, 1994). For example, Roberts and colleagues (1994) found that newly diagnosed breast cancer patients with higher levels of social support experienced less stress than did patients who reported lower levels of social support.

Social support is divided into four constructs: informal support, formal support, perceived support, and received support. Informal support is defined as a network that includes immediate and extended family, friends, neighbors, and other caregivers of children with disabilities (Bristol & Schopler, 1983). Increases in informal support are associated with decreased stress levels and attenuation of depressive symptoms. For instance, Friedrich (1979) identified that marital satisfaction was the best predictor of coping in parents of children with handicapping conditions. Furthermore, in a study of caregivers of children with autism, Bristol (1987) concluded that spousal supports, support from relatives, and support from other children with disabilities were contributing factors in decreasing overall stress levels. In addition, caregivers who perceived higher levels of support also reported fewer depressive symptoms. Moreover, in an investigation of children with cognitive deficits (e.g., mental retardation, cerebral palsy),

Herman and Thompson (1995) investigated the role of informal supports on 415 families. Results suggested that spousal support was the single most important factor in buffering the effects of familial strain. Furthermore, Dunst and colleagues (1986) underscored the positive effects that informal social support networks have on the caregiver's well being and the caregiver-child dyad. A positive relationship was identified between caregiver satisfaction with social support networks and personal well being, positive attitudes towards the individual with a disability, and more positive caregiver-child interactions (Dunst, Trivette, & Cross, 1986).

Formal supports are psychological, social, physical, or financial assistance services provided by an organization or agency. Examinations of formal support have been limited and demonstrate mixed results. Krauss et al. (1993) investigated the impact of an organized caregiver support group on 150 mothers of children with cognitive deficits and genetic abnormalities (e.g., Down syndrome, developmental delay). They concluded that, although parental participation in the support group was beneficial in lessening the impact of stress, there were negative implications. For example, mothers reported feeling strained by the attendance demands and the necessity to find care for their child while away (Krauss, Upshur, Shonkoff, & Hauser-Cram, 1993). Overall, informal supports appear to be more fruitful in alleviating strain than formal supports.

Buffering Hypothesis

The framework for the buffering effects of social support was outlined in the seminal paper by Sheldon Cohen and Thomas Wills. Cohen and Wills (1985) consider two models through which social support has an advantageous outcome on well being: the main effect model and the buffering model. A deeper understanding of these models

can, perhaps, lay the framework for prevention and intervention protocols. The defining feature that differentiates the main effect from buffering model is the prevention versus intervention assumption. That is, the main effect model assumes that social support has a positive effect on functioning regardless of personal stressors. The buffering model assumes that social support “buffers” the relationship between stress and the “pathogenic influences of stressful events” (Cohen & Wills, 1985, p. 310). A deeper analysis of the Cohen and Wills model follows.

Figure 1.1 depicts the stress buffering mechanism. Accordingly, Cohen and Wills (1985) propose that strain is the result of events, that are appraised as demanding or threatening, whereby the individual lacks coping mechanisms to adequately adjust. The acquisition of stress or strain can be conceptualized in a sequence of events. The sequence is made up of potential stressful events, the appraisal process, events appraised as stressful, emotionally linked physiological response or behavioral adaptation and stress or strain. Social support is thought to attenuate the relationship between stressful events and stress at the appraisal process level. In theory, social support may mediate a stressful event by attenuating a stress appraisal reaction. Cohen and Wills (1985) describe this process, suggesting that:

The perception that others can and will provide necessary resources may redefine the potential for harm posed by a situation and/or bolster one’s perceived ability to cope with imposed demands, and hence prevent a particular situation from being appraised as highly stressful. (p. 312).

In this study, Cohen and Wills’ buffering hypothesis will operate as a framework for the effects of perceived social support on the relationship between child disability and caregiver outcomes.

Perceived vs. Received Social Support

Measures in received social support assess specific behaviors given to the recipient (Haber, Cohen, Lucas, & Baltes, 2007). Perceived social support is the perception of the general availability of support that would be available if and when it is desired (Haber, Cohen, Lucas, & Baltes, 2007; Kitamura, Kijima, Watanabe, & Takezaki, 1999; Roberts et al., 1994). Received and perceived social support are only mildly related correlating between .01 and .3 (Lakey, Adams, Neely, Rhodes, Lutz & Sielley, 2002). A wealth of literature exists that supports the contention that perceived support predicts outcomes more consistently than received support (e.g., Barrera, 1986; Dunkel-Schetter & Bennett, 1990; Kitamura et al., 1999; Sarason et al., 1991). Perceived social support can be examined in an 'availability' and 'satisfaction' dichotomy. Availability is the quantitative aspect of perceived social support. In other words, availability consists of the number of people available as a source of support when needed. Satisfaction is the qualitative aspect of perceived social support. This constructs refers to the satisfaction with the amount and nature of supports (Kitamura et al., 1999).

Perceived social support may be manipulated via altering levels of environmental supports. For example, Barrera et al. (2002) examined ways to environmentally manipulate perceived social support in a sample of 160 adults with Type II Diabetes. Subjects were placed in one of four internet-based support groups: diabetes information only, personal self-management coach, a social support intervention group, and a personal management coach and social support intervention group. Social support groups consisted of opportunities to exchange information on diabetes specific information, coping and emotional supports. Findings suggested that those in the

internet-based social support group significantly increased their perceptions of available support as compared to those who only had information about diabetes. Thus, avenues exist to artificially create the perception of the availability of social supports when needed.

A substantial amount of literature exists examining the impact of perceived social support on caregiver outcomes. However, relatively little is known on the impact of perceived social support on caregivers of children with depression. This section will review the perceived social support literature as it pertains to various disabilities and caregiver outcomes.

Van den Heuvel and colleagues (2001) examined the risk of burnout in caregivers of stroke patients. They concluded that those satisfied with their social support system reported less caregiver burnout. Furthermore, in a study of caregivers of children with congenital heart disease Tak and McCubbin (2002) identified that perceived social support presented as a resiliency factor that had a positive influence on familial stress. Similar findings have been identified in caregivers of children with ADHD (Baldwin et al., 1995). Schoeder and Remer (2007) recently investigated the buffering effect of perceived social support on caregiver strain in caregivers of children with Tourette's Syndrome and found that perceived social support is negatively correlated to caregiver strain. Results from a path analysis revealed that perceived social support partially mediated the relationship between child reported symptom severity and caregiver strain (Schoder & Remer, 2007). Although these findings are not generalizable to other psychiatric conditions, they suggest that perceived social

support is related to a decrease in caregiver strain, and in addition, may act as a buffering variable between symptom severity and caregiver strain.

Summary

The positive effects of social support on psychological well being are well documented. Indeed, Cohen and Wills (1985) suggest that social support may act as a “buffer” against stress and strain. Two types of social support are abundant in the literature: perceived and received social support. Studies suggest that perception of social support leads to better outcomes than received social support. Furthermore, environmentally manipulating the availability of supports is an option for increasing the perception of supports. Research examining the buffering role of perceived social support on caregiver outcomes of caregivers of youth with disabilities is promising. To date, however, there are no published studies examining this link with caregivers of youth who are depressed.

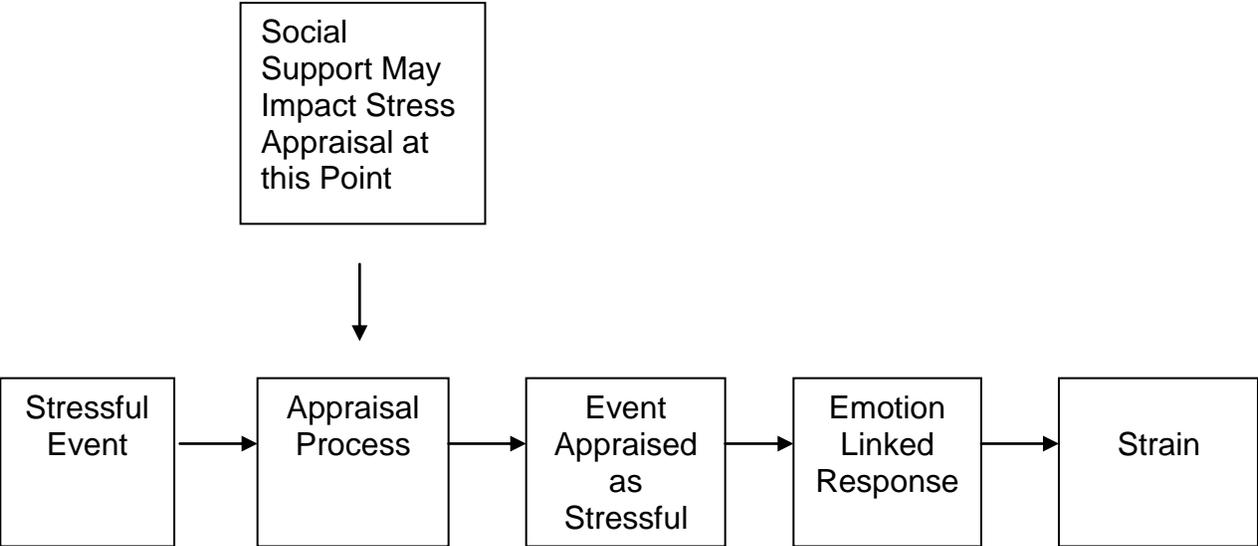


Figure 1-1. Point at which social support may impact event-strain link.

CHAPTER 2 MATERIALS AND METHODS

Participants

Adult caregivers and their child or adolescent between the ages of 7 and 17 with depression were invited to participate in this study. Participants were recruited from a child psychiatric clinic located in Florida and from an outpatient community mental health center in Nebraska. Psychiatrists and licensed psychologists were informed of the study and were asked to identify youth diagnosed with unipolar depression. Clinicians identified potential subjects on Monday of each week. Potential subjects were asked if they were interested in learning more about a brief study on the day of their appointment. If potential subjects agreed to learn more, the principal investigator or a trained research assistant outlined the study purpose, time requirement, and incentive. If potential subjects remained interested, informed consent and study related materials were reviewed with caregiver and youth. Caregivers and youth were asked to sign informed consent if they were indeed interested in participating. Recruitment lasted for approximately ten months. A total of 63 youth and caregiver dyads were collected. Prior to data collection, sample size estimates were calculated using the power analysis program G*POWER (Faul & Erdfelder, 1992). G*POWER is a widely used power analysis computer software program developed for commonly used statistical tests in the social and behavioral sciences. G*POWER bases its calculation off of four factors: effect size, power, alpha, and predictors.

Inclusion criteria for this study were as follows: (1) youth between the ages of 7 and 17 (2) diagnosed with a DSM-IV-TR unipolar depressive disorder by a licensed psychologist or psychiatrist, (3) confirmed clinical levels of depression the youth scores

in the clinical range as measured by the CES-D. Scores greater than 16 on the CES-D are established and widely used guidelines denoting depression in clinically referred samples of children and adolescents (Radloff, 1977; Roberts, Andrews, Lewinsohn, & Hops, 1990) and, (4) all youth were living with their caregiver for at least 1 month prior to their study participation.

Materials

Caregiver Strain Questionnaire (CGSQ)

The CGSQ (Brannan Heflinger, & Bickman, 1997) is used to assess the extent to which caregivers are affected by caring for youth with emotional and behavioral disorders over the previous six months. The CGSQ is a 21 item adult report instrument, from which three dimensions of strain (objective, internalized subjective, and externalized subjective) and a global measure of strain can be computed. Higher scores indicate greater strain. Responses were scored on a 5-point Likert scale from 1 (not at all) to 5 (very much a problem).

The original CGSQ sample consisted of 984 families from the Fort Bragg Evaluation Project (FBEP). Psychometric properties were evaluated using a sample of youth ages 5 to 17 with 63% of the sample consisting of males. Overall, the CGSQ demonstrates good psychometric properties. The internal consistency for each of the subscales are as follows: objective caregiver strain dimension (α coefficient .92), internalized subjective caregiver strain dimension (α coefficient .86), and externalized subjective caregiver strain dimension (α coefficient .74) (Brannan et al., 1997). To assess the validity of the CGSQ, Brannan and Heflinger (1997) correlated the CGSQ with the Family Assessment Device (FAD) which measures family functioning and Brief Symptom Inventory (BSI) which assessed caregiver distress. The FAD is a measure of

family functioning. Indeed, better functioning families should have lower levels of caregiver strain, and therefore evidence discriminant validity. Many of the subscales of the CGSQ were significantly negatively correlated with subscales of the FAD. For example, object burden, subjective internalized burden, and subjective externalized burden were all significantly negatively correlated with the general functioning index on the FAD ($r_s = -.21, -.29, \text{ and } -.30$, respectively). The BSI was used to evidence convergent validity. The BSI is a measure of caregiver distress that is experienced over the previous seven days. Many subscales of the CGSQ were significantly positively correlated with subscales of the BSI. Notably, the objective burden, subjective internalized burden, and subjective externalized burden were significantly correlated with depression ($r_s = .23, .27, \text{ and } .20$, respectively), anxiety ($r_s = .39, .35, \text{ and } .22$, respectively). Modest correlations were also found between the hostility index on the BSI and objective burden ($r = .34$), subjective internalized strain ($r = .31$), and subjective externalized burden ($r = .30$). The total score was used for purposes of this study. Using the three factor caregiver strain solution would have demanded a sample size too great for this current study. Psychometric properties on the CGSQ global score are promising. Brannan and Heflinger (1997) found that the internal consistency for the global score was high ($\alpha = .93$). Furthermore, a confirmatory factor analysis (CFA) was conducted to examine the factor structure of the items. Results suggest that the one factor model had a fit index of .92 and a chi-square of 221.44 with 27 degrees of freedom (Brannan & Heflinger, 1997).

Multidimensional Scale of Perceived Social Support (MSPSS)

The MSPSS (Zimet, Dahlem, Zimet, & Farley, 1988) is a self report measure that subjectively assesses perceived social support in adults. The MSPSS includes 12 items

that are rated on a 7-point likert scale ranging from *very strongly disagree* (1) to *very strongly agree* (7). The total possible score is 84 with a range of 12-84. This instrument includes three subscales that measure support from significant others, family, and friends. Examples of such items include:

Significant Other: "There is a special person who is around when I am in need."

Family: "My family really tries to help me."

Friends: "I can count on my friends when things go wrong."

The MSPSS demonstrates good psychometric properties. Initial psychometric properties were conducted on 257 undergraduate students in an introductory psychology course. The internal consistency for the global score was .88 (Zimet et al., 1988). The coefficients for the Significant Other, Family, and Friends subscales were .91, .87, and .85, respectively (Zimet et al., 1988). Test-retest findings on the subscales were .72 for Significant Other, .85 for Family, and .75 for Friends. A .85 test-retest coefficient was obtained for the entire scale. Further, studies were conducted to advance support the psychometric properties of this measure. Zimet et al. (1990) administered the MSPSS to 394 subjects: 265 pregnant women, 55 pediatric residents, and 74 adolescents. The alpha coefficients for these three samples ranged from .81 to .98 for each of the subscales and total score. Validity of the MSPSS was assessed using construct validity studies and confirmatory factor analysis. The MSPSS global score has been shown to be highly positively correlated with other measures of social support and self concept (Kazarian & McCabe, 1991) and significantly negatively correlated with measures of depression ($r = -.25, -.31, \text{ and } -.58$) (Kazarian & McCabe, 1991; Zimet et al., 1988). Kazarian and McCabe (1991) found that the MSPSS total score was significantly correlated with the Piers-Harris Self Concept Scale total score (r

= .42) and the family and friend subscales of the emotional support score on the Social Support Behaviors Scale ($r = .63$ and $.53$, respectively). Clara et al. (2003) performed a CFA on the MSPSS and found evidence that supports the use of one global score or a three factor index. The MSPSS global score demonstrated good fit on samples of university students ($GFI = .95$) and psychiatrically ill patients ($GFI = .94$) Clara et al. noted that “clinicians and researches can choose to use either the individual perceived support factors or the entire scale as a brief measure to validly assess the perception of global perceived support” (p. 268). For purposes of this study, the MSPSS global score was used to identify the level of perceived social support in caregivers of children with depression.

Center for Epidemiological Studies–Depression Scale (CES–D)

The CES-D (Radloff, 1977) is a frequently used 20-item scale designed to measure depression symptom severity in the general population. Respondents are asked to rate the frequency with which they have experienced depressive symptoms over the past week. The four possible responses range from 0 (less than 1 day over the last week) to 3 (5-7 days over the past week) producing a score range of 0-60. A score of 16 or greater is generally considered high and is generally used as a cutoff for significant depressive symptoms (Johnston, Wright, & Weinman, 1995) The CES-D has four underlying factors: (1) Depressed Affect, (2) Positive Affect, (3) Somatic and Retarded Activity, and (4) Interpersonal. For purposes of this study the total score was used to gauge caregiver depression severity. The CES-D is a psychometrically sound measure with high reliability and validity estimates found in community samples of adults and clinically depressed individuals. The CES-D demonstrated adequate to adequate test-retest reliability ($r = .45$ to $.71$) and good internal consistency ($\alpha = .85$ –

.90) (Fountoulakis et al., 2007; Roberts, Andrews, Lewinsohn, & Hops, 1990). Construct validity has also been established. Fountoulakis et al. (2007) found evidence of convergent validity with the Beck Depression Inventory, Zung Depression Rating Scale, Kellner Symptom Questionnaire, and the Major Depression Inventory. Moreover, divergent validity for the CES-D has been found using measures of positive affect and emotionality (Joseph, 2006; Ryff et al., 2006). Furthermore, Hertzog et al. (1990) examined the factor structure of the CES-D in adults aged 20-80 and found evidence for the use of a single depression factor (GFI = .923). The CES-D demonstrates good psychometric properties in adolescent populations (Roberts, Andrews, Lewinsohn, & Hops, 1990). Internal consistency was found to be good ($\alpha > .87$) in studies using adolescent samples (Garber et al., 2009; Roberts et al., 1990). The CES-D has a well-established record of use as a litmus of depressive symptomatology in adolescent samples (e.g., Asarnow et al., 2005; Dierker et al., 2001)

In this study, the CES-D total score was used to control for levels of caregiver depression.

Children's Depression Inventory (CDI)

The CDI (Kovacs, 1992) is a widely used measure of depression symptom severity in the 7-17 age range. The CDI gauges a range of depression symptoms that include: disturbed mood, low self evaluation, hopelessness, and difficulties in interpersonal behaviors. This 27 item instrument consists of three choices, keyed 0 for absence of symptoms, 1 for mild symptoms, and 2 for definite symptoms. Total scores can range from 0 to 54. In addition to the total score, the CDI yields five factor scores for negative mood, interpersonal problems, ineffectiveness, anhedonia, and negative self esteem.

The CDI was normed on a sample of 1,266 public school students. The sample consisted of 592 boys ages 7 to 15 and 674 girls ages 7 to 16. The CDI demonstrates adequate to excellent internal consistency with alphas ranging from .70 to .89 (Kovacs, 2001). In short interval test-retest reliability studies the CDI demonstrates adequate to excellent test-retest correlations ranging from .56 to .87 (Kovacs, 2001; Nelson, 1990; Weiss et al., 1991). The large gap in test-retest statistics is attributed to length of time between administrations (e.g., 1 week to 6 weeks) and the fact that the CDI measures a state and not a trait (Kovacs, 2001). Good internal consistency was reported for the normative sample ($r = .86$) and a clinical youth sample ($r = .86$ to $.88$) (Kovacs, 1992; Weiss et al., 1991). Evidence of the validity of the CDI has been well established in a myriad of studies. Ultimately, the CDI has been established to correlate with other measures of childhood depression (Shain, Naylor, & Alesi, 1990) and measures of related constructs (Blumberg & Izard, 1986; Eason, Finch, Brasted, & Saylor, 1985; Elliott & Tarnowski, 1990). The CDI total school was also found to discriminate between a group of clinically depressed youth and non-depressed youth. Furthermore, the CDI has demonstrated factorial validity (Kovacs, 2001; Weiss et al., 1991) and predictive validity (Devine, Kempton, & Forehand, 1994; DuBois, Felner, Bartels, & Silverman, 1995). According to a factor analysis performed by Kovacs (2001), the CDI can be interpreted as five distinct factors or as a single general concept of depression. Craighead et al. (1995) indicates that the CDI total score is recommended as the most practical and valid index of classifying individuals as either depressed or not depressed. In this study, the CDI total score was used to identify youth depression symptom severity and to determine if subjects met eligibility criteria.

Swanson, Nolan, and Pelham IV (SNAP-IV) Parent Rating Scale – Long Form

The SNAP-IV (Swanson et al. 2001; Swanson, 1992) is a widely utilized 90-item parent rating scale used to identify symptoms consistent with symptoms of DSM-IV diagnoses. Both a short and long form exists. The long form includes features of the Conners Index Questionnaire (Conners, 1969), the IOWA Conners Questionnaire (Loney and Milich, 1982), and the Swanson, Kotkin, Agler, M-Flynn, and Pelham rating scale (SKAMP) (Swanson, 1992). The primary focus of the SNAP-IV is to identify DSM-IV symptoms for Attention Deficit Hyperactivity Disorder (ADHD) and Oppositional Defiant Disorder (ODD). Additional symptoms included on the SNAP-IV include Tourette's Disorder, Obsessive-Compulsive Disorder, Generalized Anxiety Disorder, Personality Disorders, Depressive Disorders, and Adjustment Disorders. The SNAP-IV also includes items related to classroom impairments (e.g., Has difficulty remaining quiet according to classroom rules). The measure is based on a 0-3 rating scale (Not at All = 0, Just a Little = 1, Quite a Bit = 2, and Very Much = 3). For purposes of this study, the SNAP-IV was used to identify a cluster of comorbid symptoms. Thus, the total score was summed to represent an approximation of overall symptom presentation.

Despite its wide spread use, data on the psychometric properties of the SNAP-IV is limited. Representative normative data have not been reported. Normative data have been reported based on a study of 5 to 11 year olds from low SES Hispanic, African American, and Caucasian caregivers (Gaub & Carlson, 1997). Psychometric properties of the SNAP-IV have been identified as acceptable to excellent. Stevens et al. (1998) described the internal consistency as good to excellent (i.e., .84 to .95) in a sample of teachers. Similar data was found in a sample of caregiver ratings (i.e., $\alpha = .94$) (Bussing et al., 2008). Coefficient alphas were described as acceptable to excellent

range across inattentive, hyperactive/impulsive, and ODD sub-domains (i.e., $\alpha = .90$, $.79$, and $.89$ respectively) (Bussing et al., 2008). Results from a confirmatory factor analysis suggest a three factor model with inattention, hyperactivity/impulsivity, and ODD as distinct constructs. Bussing et al. reported that the SNAP-IV demonstrates predictive validity in a community sample, and may be a good screening tool for distinguishing youth presenting with emotional and behavioral concerns from those who do not.

Demographic Questionnaire

Caregiver and child's age, sex, marital status, family income, caregiver's relationship to the child, caregiver level of education, race and ethnicity data were obtained from the caregiver. Additional child relevant data consisted of years of symptom presentation and psychotropic medication use. Sex was coded female and male. Race and ethnicity was divided into five categories: African American, Asian, Hispanic, White not Hispanic Origin, Mixed Race/Other. Marital status was coded as married, single – never married, divorced, widowed, and domestic partnership. The caregiver's relationship to the child was coded as mother, father, grandmother, grandfather, sibling, and other. Socioeconomic status was coded \$0-\$34,999, \$35,000-\$74,999, \$75,000-\$99,999, and greater than \$100,000. Caregiver highest level of education was coded as some high school, high school diploma/GED, some college, 2-year college degree (Associates), 4-year college degree (Bachelors), master's degree, doctoral degree, professional degree (MD, JD)

Procedure

Prior to data collection, caseloads were reviewed with staff psychiatrists or psychologists to screen for potential subjects. The screening procedure was used to

identify if the client met age and diagnosis eligibility criteria. Inclusion criteria for this study were as follows: (1) youth between the ages of 7 and 17 (2) diagnosed with a DSM-IV unipolar depressive disorder by a licensed psychologist or psychiatrist, (3) to confirm clinical levels of depression the youth scores in the clinical range as measured by CES-D. Scores greater 16 on the CES-D are established and widely used guidelines denoting depression in clinically referred samples of children and adolescents (i.e., Radloff, 1977; Roberts, Andrews, Lewinsohn, & Hops, 1990) and, (4) all youth were living with their caregiver for at least 1 month prior to their study participation.

Prospective participants were approached, by either the lead investigator or a trained research assistant, at the time of their appointment to discuss study related materials and interest in participation. Research assistants were trained by the lead investigator and were associated with the clinic. A review of the study was presented to all adult caregivers and youth. If participants agreed to participate they were presented with an Informed Consent form. Caregivers and their children were asked to complete the questionnaire packet. In order to ensure confidentiality, all identifying information including name and geographic location was not asked. After caregiver and child complete the questionnaire was reviewed for completeness.

Data Analysis

The design of this study is cross-sectional and correlational. All data were analyzed using SPSS statistical software. Descriptive statistics were examined to assess for skewness and multicollinearity. A mediation analysis using Baron and Kenny's (1986) mediational model was the predominant statistical analysis method. A mediation analysis examines the impact of a mediator variable (M) between two variables (X) and (Y). A complete mediation is identified when X no longer affects Y

when M has been controlled resulting in a non-significant X to Y association. A partial mediation is identified when the controlled mediator produces a reduced X to Y path. However, the X to Y path is different from zero (Baron & Kenny, 1986). Baron and Kenny (1986) outline a four step process for testing for mediation. First, one must show that the X variable predicts the Y variable. Indeed, this step identifies that there is an effect to be mediated. Step two necessitates that the examiner show that variable X predicts the mediator. Step three involves showing that the mediator predicts the Y variable. In this analysis Y is set up as the criterion variable and X and M as predictor variables. Lastly, one must identify if M completely or partially mediates the X to Y relationship. If the effects of X on Y controlling for the mediator is non-significant then there is evidence of a complete mediation. If the relationship between the predictor and the dependent variables are still significant, albeit it a lower association, then one can conclude that a partial mediation exists. Determining a complete or partial mediation will be analyzed using a hierarchical regression analysis. Demographic information will be inputted into block one of the regression. In block two, the independent variable will be inputted to determine the influence of the predictor variable on the dependent variable accounting for control variables. This analysis will be run four times to meet the Baron and Kenny criteria. If significant associations are identified in accordance with Baron and Kenny, we will then test for mediation using hierarchical regression. To test for mediation using hierarchical regression, the mediator will be inputted in block 2 with the predictor variable inputted in block 3. This analysis will demonstrate the mediators influence on the relationship between predictor and outcome variables. If the predictor variable is no longer significant with the dependent variable, accounting for the

mediator, then there is evidence of a complete mediation. If the predictor variable remains significant with the dependent variable with evidence of a decreased association, then there is evidence of a partial mediation. A Sobel test (1982) will be used to test the significance of the mediation. The Sobel Test is used to identify whether the indirect effect of the predictor variable on the variable accounting for the mediator variable is significant.

In this study, two mediational analyses will be conducted. The first analysis will examine the relationship between youth depression symptom severity on caregiver strain. The second analysis will examine the impact of youth depression comorbid symptom severity on caregiver strain. As aforementioned, if the Baron and Kenny criteria were met, perceived social support will be included in analyses to identify mediational impact. Subsequent Sobel tests will be computed to identify if the mediation is indeed significant at the $p < .05$ level.

Hypotheses

The purpose of this study was to understand the impact on caregivers who care for youth with clinical depression. This study utilized McCubbin and Pattern's Double ABCX model to help explain the inter-correlations between relationships among symptom severity, externalizing comorbid symptoms, perceived social support, and caregiver strain. The hypotheses for this study are listed below and diagramed in Figure 2.1.

Hypothesis 1

Perceived social support, as measured by the MSPSS, will mediate the relationship between youth depression symptom severity, as measured by the CES-D,

and caregiver strain, as measured by the CGSQ, when controlling for demographic variables, caregiver depression, and comorbid symptom severity.

Hypothesis 2

Perceived social support as measured by the MSPSS will mediate the relationship between comorbid symptom severity, as measured by the SNAP-IV rating scale, and caregiver strain as measured by the CGSQ, when controlling for demographic variables, caregiver depression, and youth depression symptom severity.

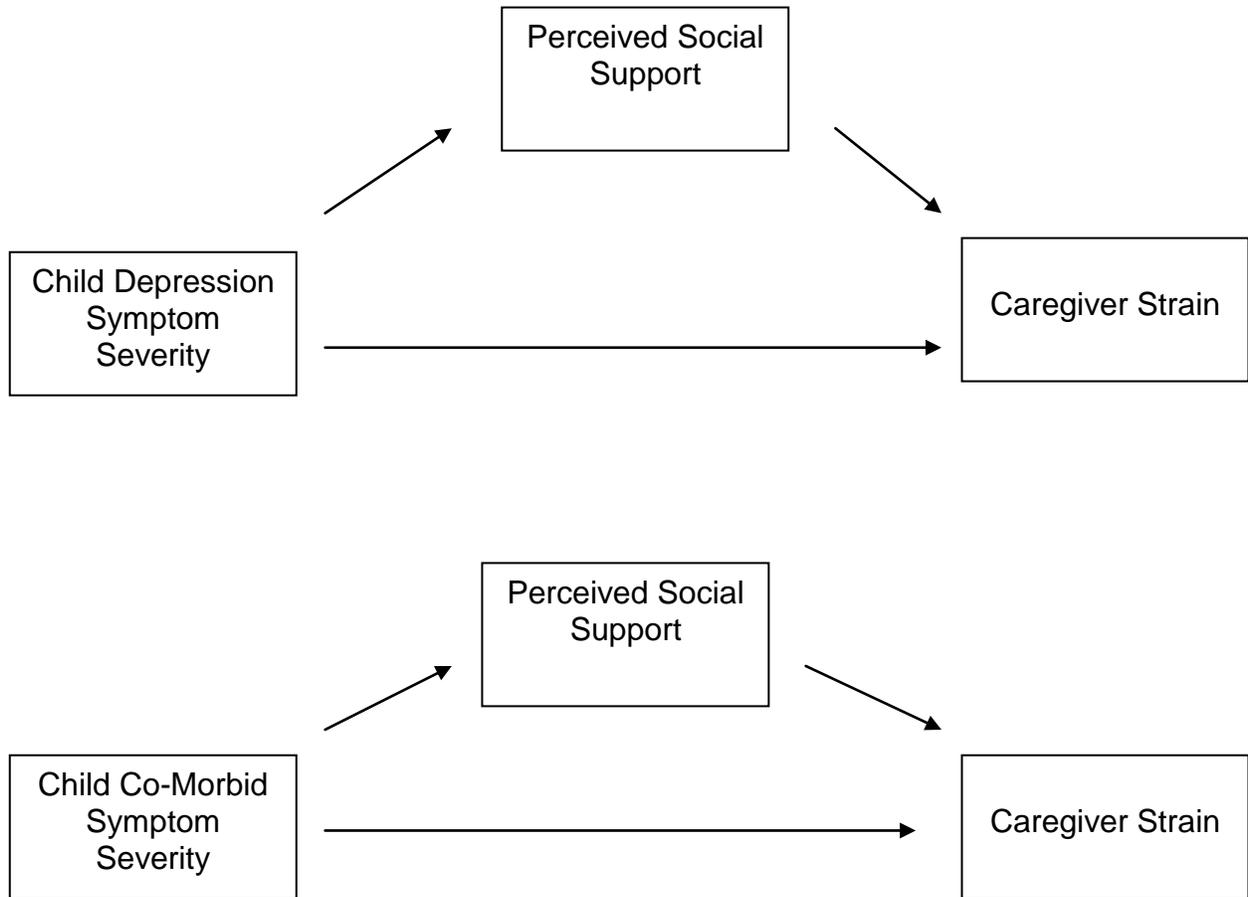


Figure 2-1. Hypothesized mediation models.

CHAPTER 3 RESULTS

The purpose of this study was to investigate the effects of depression symptom severity, and comorbid symptom severity on caregiver strain in caregivers of youth with depression. Perceived social support was examined as a potential mediator between caregiver strain and depression symptom severity and comorbid symptom severity. Control variables consisted of caregiver levels of depression, socioeconomic status, caregiver education level, child gender, child age, marital status, race and ethnicity, family income, utilization of psychotropic medication, and length of time since initial symptom presentation.

All variables were tested to ensure that assumptions were not violated. Independent samples t-tests were used to examine differences between study participants at respective sites. The results of the t-tests suggest no group differences on study-related or demographic variables. A correlation matrix was produced to identify any multicollinearity between youth depression symptom severity and comorbid symptom severity. Correlations between independent variables were low ($r = -.104$; $p > .05$) Thus, all variables were appropriate for inclusion as existing, considering degree of skewness and multicollinearity. An alpha level of .05 was used for all statistical tests. In Table 3-1 means, standard deviations, and ranges are given for study related measures.

Given the low correspondence between the CES-D and CDI total scores in this study ($r = .392$; $p < .05$), only the CES-D was used. Concerns governing the use of the CDI in the literature and inconsistent cut-off score guidelines (Matthey & Petrovski, 2002) influenced the decision to only use the CES-D. For example, Matthey and

Petrovski examined the cutoff scores of the CDI for screening purposes. They found frequent inconsistencies in the use of the CDI cutoff scores in the literature. In some studies 11 to 13 was used as a cutoff score (e.g., Messier & Ward, 1998; Garvin, Leber, & Katler, 1991). Other studies used cutoffs in the 19 to 20 range (Chan, 1997). Furthermore, a ROC curve revealed that when using a cutoff score of 20, clinicians will miss approximately 86% of depressed youth. Matthey and Petrovski (2002) recommend that “the CDI is better suited as a continuous measure of mood and that cutoff scores should not be used to screen for the likely presence or absence of depression” (p. 146).

Statistical Analyses

Demographic Information

Means and standard deviations along with percentages for demographic data in this study are reported in Table 3-2. A total of 63 child and caregiver dyads participated in this study. Five dyads (7%) declined to participate in this study. Seven youth (10%) did not meet eligibility criteria due to sub-clinical levels of depression on the CES-D. There were 52 female caregivers and 47 female child participants. Children ranged in age from 8 to 17 ($M = 14.63$, $SD = 2.27$). Participants were largely Caucasian (84%) and almost half of caregivers' income fell between \$35,000-\$74,999. Approximately 60% of youth were on medication for their depression, and 54% of youth presented with depression for less than 1 year.

Mediation

Baron and Kenny's (1986) recommendations regarding pre-requisite criteria for testing mediation were used to determine whether or not statistical mediation should be assessed among study variables. These pre-requisite criteria are that: (1) the predictor must be related to the outcome variable, (2) the predictor must be related to the

hypothesized mediator, and (3) the hypothesized mediator must be related to the outcome variable. Statistically significant predictions among study variables were considered to satisfy these pre-requisite criteria. If pre-requisite criteria were met, a z-test of indirect paths (Sobel, 1982) was computed to determine if the association between the predictor and the outcome variables was significantly reduced after controlling for the mediator variable. The predictor variables in this study included level of child depressive symptom severity (as reported by the child), and overall levels of comorbid symptom severity (as reported by the caregiver). The mediator variable was perceived social support, as measured by the caregiver. The outcome variable was level of caregiver strain as measured by the caregiver.

Zero-order Correlations

Initial analyses explored the relations among study related variables using zero-order correlations and are presented in Table 3-3. Correlations indicated that youth depression symptom severity was unrelated to comorbid symptom severity and perceived social support. Perceived social support demonstrated a significant inverse relationship with comorbid symptom severity and caregiver strain suggesting that caregivers of youth with depression who report lower levels of perceived social support report being more strained and report youth as demonstrating more severe comorbid symptoms.

Role of Depression Symptom Severity

Analyses examined the impact of depression symptom severity on caregiver strain. Baron and Kenny's pre-requisite criterion for mediation guided the analyses with regards to total child depression symptom severity, overall levels of perceived social support, and total levels of caregiver strain. A hierarchical regression was used to clarify

the relationship between depression symptom severity, perceived social support, and caregiver strain independent of demographic variables. Eleven variables were controlled for in this analysis. They included comorbid symptom severity, caregiver gender, race and ethnicity, caregiver marital status, caregiver's relationship to the child, family income, caregiver level of education, youth's age, youth's gender, caregiver level of depressive symptoms, youth's use of psychotropic medication for depression, and length in years of depressive symptom presentation.. Tables 3-4 and 3-5 outline the results related to the role of youth depression symptom severity in predicting caregiver strain and perceived social support. Demographic variables were inputted to block 1 of the hierarchical multiple regression, and depression symptom severity was inputted into block 2. According to the analyses, while controlling for demographic variables, comorbid symptoms, and caregiver level of depression, total levels of child depression symptom severity did not significantly predict caregiver strain ($\beta=.11, p >0.05$) or perceived social support ($\beta=.15, p >0.05$). Depression symptom severity did not significantly increase the overall variance attributable to caregiver strain ($\Delta R^2 = .03, p >0.05$). Given that step 1 and 2 of Baron and Kenny's pre-requisite criteria for mediation were not met, no further analyses were conducted.

Role of Comorbid Symptom Severity

Hierarchical regression analyses between comorbid symptoms severity, overall levels of perceived social support, and total levels of caregiver strain were examined are detailed in Tables 3-6, 3-7, and 3-8. As shown in Table 3-6, while controlling for demographic variables, youth depression symptom severity, and caregiver levels of depression, comorbid symptom severity significantly contributed to the overall variance attributable to caregiver strain ($\Delta R^2 = .12, p <0.05$). Total levels of child comorbid

symptom severity significantly predicted levels of perceived social support ($\beta = -.34, p < 0.05$) and total levels of caregiver strain ($\beta = .46, p < 0.05$). As depicted in Table 3-7, perceived social support also significantly predicted levels of caregiver strain ($\beta = -.25, p < 0.05$). As demonstrated in Table 3-9 and Figure 3-1, perceived social support partially mediated the relationship between comorbid symptom severity and caregiver strain ($\beta = .41, p < 0.05$). Given evidence of a partial mediation consistent with Baron and Kenny's pre-requisite criteria, the Sobel's test was conducted to test the significance of the mediating effects. Betas and standard errors were inputted into an online module of the Sobel test. The Sobel's test of the indirect effects of comorbid symptom severity on caregiver strain was statistically significant ($z = 1.87, p < 0.05$) suggesting support for the mediational role of caregiver perceived social support in the relationship between level of symptoms comorbid with youth depression and caregiver strain.

Summary

Taken together, these findings suggest that caregivers' level of perceived social support partially mediates the association between the severity of comorbid symptoms associated with youth depression and caregiver strain. Indeed, comorbid symptoms in youth with depression have a significant impact on caregiver strain. The influence of depression symptom severity on caregiver strain controlling for demographic variables, caregiver depression, and comorbid symptoms is negligible.

Table 3-1. Means, standard deviation, and ranges of study related measures

	Mean (Standard Deviation)	Range
Center for Epidemiological Studies Depression Scale (CES-D)	31.1 (9.23)	16 to 55
Swanson, Nolan, and Pelham IV (SNAP-IV)	182.4 (46.63)	97 to 275
Caregiver Strain Questionnaire (CGSQ)	59.9 (17.37)	27 to 87
Multidimensional Scale of Perceived Social Support (MSPSS)	58.6 (15.44)	12 to 84

Table 3-2. Background data for study participants

Variable	Mean (Standard Deviation) or Percentage
Child Gender (% female)	74.6
Child Age (in years)	14.6 (2.27)
Caregiver Gender (% female)	82
Race/Ethnicity (%)	
Asian	0
Black/African American	8
Caucasian	84
Hispanic	8
Mixed Race/Other	0
Marital Status (%)	
Married	71.4
Single – Never Married	8
Divorced	20.6
Relationship to child (% mother)	76.2
Yearly Income (%)	
0-34,999	20.6
35,000 – 74,999	44.4
75,000 – 99,999	12.7
More than 100,000	22.2
Caregiver Level of Education (%)	
High School Diploma/GED	17.5
Associate's Degree	53.9
Bachelor's Degree	14.3
Master's Degree	9.5
Doctoral/Professional Degree	1.6
Currently Taking Medication (%)	60.3
Time Since Depression Diagnosis (%)	
Less than 1 year	54
1-2 years	28.6
2-3 years	3.2
3-4 years	4.8
4-5 years	6.3
More than 5 years	3.2

Table 3-3. Intercorrelations among study measures

	1	2	3	4
Youth Depression Symptom Severity (CES-D)	1	.136	.142	-.104
Comorbid Symptom Severity (SNAP-IV)		1	.526**	-.381*
Caregiver Strain (CGSQ)			1	-.422**
Perceived Social Support (MSPSS)				1

* $p < 0.05$; ** $p < 0.01$

Table 3-4. Hierarchical regression analysis predicting caregiver strain from youth depression symptom severity

Step	Variable(s)	R^2	ΔR^2	F	β
1		.54	.54	4.92**	
	Caregiver depression severity				-.17
	Caregiver gender				.45**
	Race and ethnicity				.09
	Marital status				.16
	Relationship to the child				.03
	Income				-.06
	Caregiver education				.06
	Child age				-.01
	Child gender				.22*
	Currently on medication				-.22
	Time since initial symptoms				-.09
	Comorbid symptom severity				.43**
2		.57	.03	4.91**	
	Caregiver depression severity				-.19
	Caregiver gender				.43**
	Race and ethnicity				.08
	Marital status				.19
	Relationship to the child				.06
	Income				-.02
	Caregiver education				.04
	Child age				-.07
	Child gender				.22*
	Currently on medication				-.20
	Time since initial symptoms				-.06
	Comorbid symptom severity				.47**
	Youth depression symptom severity				.18

* $p \leq .05$. ** $p \leq .01$

Table 3-5. Hierarchical regression analysis predicting perceived social support from youth depression symptom severity

Step	Variable(s)	R^2	ΔR^2	F	β
1		.30	.30	1.74	
	Caregiver depression severity				.17
	Caregiver gender				-.31
	Race and ethnicity				-.06
	Marital status				-.24
	Relationship to the child				.02
	Income				.13
	Caregiver education				-.10
	Child age				.09
	Child gender				-.06
	Currently on medication				-.12
	Time since initial symptoms				-.03
	Comorbid symptom severity				-.35*
2		.30	.08	1.63	
	Caregiver depression severity				.17
	Caregiver gender				-.32*
	Race and ethnicity				-.06
	Marital status				-.23
	Relationship to the child				.04
	Income				.16
	Caregiver education				-.11
	Child age				.06
	Child gender				-.06
	Currently on medication				-.11
	Time since initial symptoms				-.01
	Comorbid symptom severity				-.33*
	Youth depression symptom severity				.10

* $p \leq .05$. ** $p \leq .01$

Table 3-6. Hierarchical regression analysis predicting caregiver strain from youth comorbid symptom severity

Step	Variable(s)	R^2	ΔR^2	F	β
1		.46	.46	3.54**	
	Youth depression severity				.17
	Caregiver depression severity				.06
	Caregiver gender				.40**
	Race and ethnicity				.05
	Marital status				.09
	Relationship to the child				.11
	Income				-.11
	Caregiver education				.10
	Child age				-.20
	Child gender				.23*
	Currently on medication				-.28*
	Time since initial symptoms				.03
2		.58	.12	5.13**	
	Youth depression severity				.22
	Caregiver depression severity				-.21*
	Caregiver gender				.43**
	Race and ethnicity				.08
	Marital status				.21
	Relationship to the child				.08
	Income				-.01
	Caregiver education				.03
	Child age				-.07
	Child gender				.22*
	Currently on medication				-.19
	Time since initial symptoms				-.06
	Comorbid Symptom Severity				.46**

* $p \leq .05$. ** $p \leq .01$

Table 3-7. Hierarchical regression analysis predicting perceived social support from youth comorbid symptom severity

Step	Variable(s)	R^2	ΔR^2	F	β
1		.24	.24	3.54**	
	Youth depression severity				.17
	Caregiver depression severity				.06
	Caregiver gender				.40**
	Race and ethnicity				.05
	Marital status				.09
	Relationship to the child				.11
	Income				-.11
	Caregiver education				.10
	Child age				-.20
	Child gender				.23*
	Currently on medication				-.28*
	Time since initial symptoms				.03
2		.30	.04	1.63	
	Youth depression severity				.09
	Caregiver depression severity				.16
	Caregiver gender				-.32*
	Race and ethnicity				-.06
	Marital status				-.22
	Relationship to the child				.04
	Income				.16
	Caregiver education				-.12
	Child age				.07
	Child gender				.07
	Currently on medication				-.11
	Time since initial symptoms				-.01
	Perceived social support				-.34*

* $p \leq .05$. ** $p \leq .01$

Table 3-8. Hierarchical regression analysis predicting perceived caregiver strain from perceived social support

Step	Variable(s)	R^2	ΔR^2	F	β
1		.46	.46	3.54**	
	Youth depression severity				.13
	Caregiver depression severity				-.04
	Caregiver gender				-.29
	Race and ethnicity				-.04
	Marital status				-.14
	Relationship to the child				.02
	Income				.24
	Caregiver education				-.17
	Child age				.16
	Child gender				-.07
	Currently on medication				-.04
	Time since initial symptoms				-.07
2		.51	.05	3.90**	
	Youth depression severity				.20
	Caregiver depression severity				.05
	Caregiver gender				.32*
	Race and ethnicity				.04
	Marital status				.06
	Relationship to the child				.12
	Income				-.05
	Caregiver education				.06
	Child age				-.16
	Child gender				.21
	Currently on medication				-.29*
	Time since initial symptoms				.01
Perceived social support				-.25*	

* $p \leq .05$. ** $p \leq .01$

Table 3-9. Mediation hierarchical regression analysis predicting caregiver strain

Step	Variable(s)	R^2	ΔR^2	F	β
1		.46	.46	3.54**	
	Youth depression severity				.13
	Caregiver depression severity				-.04
	Caregiver gender				-.29
	Race and ethnicity				-.04
	Marital status				-.14
	Relationship to the child				.02
	Income				.24
	Caregiver education				-.17
	Child age				.16
	Child gender				.07
	Currently on medication				.04
	Time since initial symptoms				-.07
2		.51	.05	3.90**	
	Youth depression severity				.20
	Caregiver depression severity				.05
	Caregiver gender				.32*
	Race and ethnicity				.04
	Marital status				.06
	Relationship to the child				.12
	Income				-.05
	Caregiver education				.06
	Child age				-.16
	Child gender				.21
	Currently on medication				-.29*
	Time since initial symptoms				.01
Perceived social support				-.25*	
3		.59	.08	4.99**	
	Youth depression severity				.23
	Caregiver depression severity				-.19
	Caregiver gender				.38**
	Race and ethnicity				.08
	Marital status				.18
	Relationship to the child				.08
	Income				.02
	Caregiver education				.01
	Child age				-.06
	Child gender				.21*
	Currently on medication				-.21
	Time since initial symptoms				-.06
Perceived social support				-.15	
Comorbid Symptom Severity				.41**	

* $p \leq .05$. ** $p \leq .01$

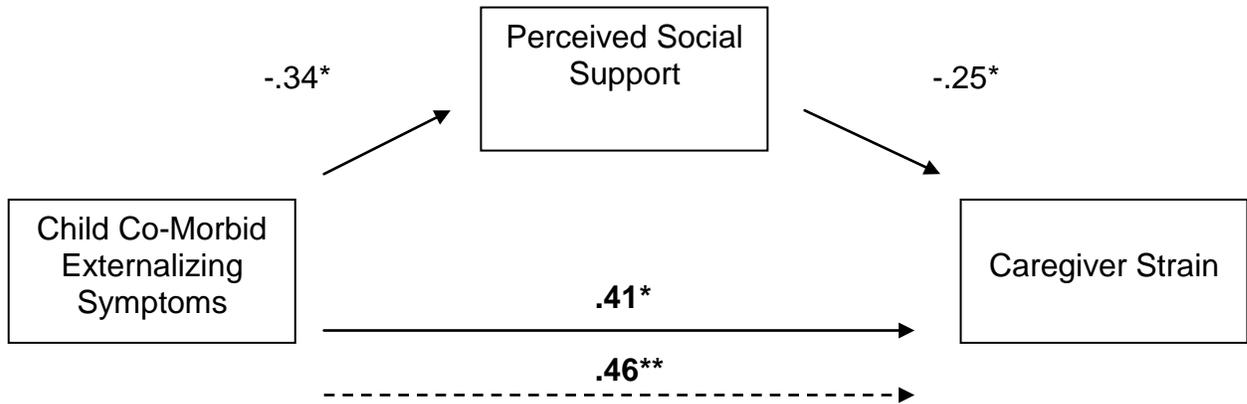


Figure 3-1. Mediating effect of perceived social support on the relationship between comorbid symptom severity and caregiver strain. Standardized regression coefficients shown. Dotted line indicates relationship between variables without mediator in the equation. * $p < 0.05$; ** $p < 0.01$

CHAPTER 4 DISCUSSION

The purpose of this study was to identify the impact of caring for a youth with depression on caregiver well-being. The impact of caring for youth with internalizing symptoms has received little attention in the literature. Specifically, to date, only one study was found that examined caregiver outcomes associated with caring for a youth with depression (Tan & Rey, 2005). The current study examined the role of depression symptom severity, the impact of comorbid symptom severity, and the mediating impact of perceived social support on caregiver strain. This study sought to address the following questions. First, does an increase in youth depression symptom severity significantly increase levels of caregiver strain? If so, does perceived social support attenuate the relationship between youth symptom severity and caregiver strain? Further, do comorbid symptoms associated with youth depression significantly increase levels of caregiver strain? If so, does perceived social support attenuate the relationship between comorbid symptoms associated with depression and caregiver strain? This chapter will address and provide support for the aforementioned questions, offer implications for clinical practice and research, discuss the limitations of the current study, and offer future directions for research.

Characteristics of participants' depression, such as symptom severity and comorbid conditions, were analyzed to determine whether they predict caregiver strain, as well as the role of perceived social support as a mediator. It was hypothesized that the symptom severity of a child's disorder would significantly predict caregiver strain when demographic variables, comorbid symptom severity, and caregiver levels of depression were controlled. That is, the greater the severity of the child's symptoms, the

greater the caregiver strain. This hypothesis was not supported. Symptom severity did not significantly contribute to overall strain in caregivers when demographic variables, caregiver depression, and comorbid symptoms were included in the analysis. This finding contradicts prior studies examining the impact of youth depression on caregiver strain (Tan & Rey, 2005) and the impact of the symptom severity of a primary diagnosis on caregiver strain (Beckham et al., 1995; Schoeder & Remer, 2007; Wilkinson et al., 2001). In the only identified study examining the impact of youth depression on caregiver outcomes, Tan and Rey (2005) identified a link between depressed youth and caregiver stress. However, Tan and Rey coded depression as a dichotomous variable and failed to examine comorbid symptom severity. Comorbid symptoms are frequently associated with youth depression (Angold & Costello, 1993; Kashani et al., 1989; Rao, Daley, & Hammen, 2000; Tamplin et al., 1998) and comorbid symptoms may have a significant impact on caregiver strain (Beckham & Burker, 1995; Schoeder & Remer, 2007; Wilkenson et al., 2001). This finding in the context of depression is logical given that symptoms of depression are often internalized and may not impact the family as severely as overt externalizing behaviors. Moreover, symptoms of withdrawal and depressed mood may not be easily recognized by caregivers. Evidence exists that suggests that parents may not be as cognizant of internalizing symptoms as they are of externalizing behavioral problems (Mesman & Koot, 2000). For example, Mesman and Koot (2000) found that caregivers are not adept at noticing depression related symptoms that include withdrawal and depressed mood. Indeed, lack of awareness may be a result of the covert nature of internalizing symptoms (e.g., sadness, hopelessness). Perhaps, depression may not be apparent to caregivers until symptoms begin to impair

functioning or if externalizing behaviors are apparent. In other words, strain may be more likely to result in caregivers who have difficulty managing oppositional and disruptive behaviors. Indeed, oppositional and disruptive behaviors are more likely to result in school related problems (Bramlett, Murphy, Johnson, Wallingsford, & Hall, 2002), and, in addition, are the most problematic complaint by parents in pediatric settings (Arndorfer, Allen, & Aljazeera, 1999).

Perhaps the lack of association between youth reported symptom severity and caregiver reported strain is related to inconsistencies in child and parent reports. For example, King et al. (1997) identified that caregivers tend to report greater rates of depression during adolescence than reported by adolescents themselves. One possible hypothesis for the lack of association between youth reported depression symptom severity and caregiver strain in this study is the difference in caregiver-child agreement. Indeed, caregiver perception of high levels of youth depression symptom severity may result in higher levels of caregiver strain. Perhaps, caregiver strain may be a function of the perception of presenting symptoms and not actual symptoms reported by youth.

I also hypothesized that comorbid symptoms, in addition to the child's depression, would significantly predict caregiver strain of caregivers of children with depression. That is, the greater magnitude of caregiver reported comorbid symptom severity, the greater the caregiver strain. Indeed, caregivers who reported more comorbid symptoms experienced significantly greater strain than caregivers reporting lower comorbid symptoms. Given past research on caregiver strain and oppositional and disruptive behaviors, this finding seems logical. For example, oppositional and delinquent behaviors are consistently found to predict caregiver strain (Evans, Sibley, &

Serpell, 2009). Moreover, the number of oppositional and delinquent symptoms exacerbates strain felt by caregivers (Angold et al., 1998). Despite not being able to clearly delineate the type of comorbid symptom, this finding is still noteworthy given the high correlation. Furthermore, given the literature on the frequency of comorbid symptoms with depression (Beckham & Burker, 1995; Schoeder & Remer, 2007; Wilkinson et al., 2001), and the impact of behavioral problems on family functioning (Campbell, Pierce, Moore, Marakovitz, & Newby, 1996; Klahr, McGue, Iacono, & Burt, 2011), it would be expected that caregiver strain is greatest when accounting for comorbid symptoms. This finding is consistent with past research suggesting that an increase in comorbid symptoms significantly impacts caregiver strain. For example, when examining the familial impact of caring for a child with Tourette's Syndrome, Wilkinson and colleagues (2001) found that caregivers of children with Tourette's Syndrome experience significantly more strain from comorbid, Attention Deficit Hyperactivity Disorder, Obsessive Compulsive Disorder, Conduct Disorder, and Oppositional Defiant Disorder diagnoses. Schoeder and Remer (2007) also examined the impact of comorbid diagnoses in youth with Tourette's Syndrome and found that a mere comorbid diagnosis significantly increased caregiver strain.

Perceived social support of caregivers of children with depression was hypothesized to mediate the relationship between child symptom severity, accounting and not accounting for comorbid symptoms, and caregiver strain. That is, the greater the perceived social support, the less caregiver strain reported by caregivers of children with depression. In lieu of the non-significant association between depression symptom severity and caregiver strain, no further analyses were conducted examining the

meditational role of perceived social support. Given that there were significant associations between comorbid symptom severity, perceived social support, and caregiver strain, further analyses identifying the significance of mediation were conducted. The hypothesis that comorbid symptom severity and caregiver strain is mediated by perceived social support was supported in this study. Perceived social support was found to significantly partially mediate the relationship between comorbid symptom severity and caregiver strain in caregivers of youth with depression. This finding is consistent with previous research examining the role of comorbid symptom severity on caregiver strain (Schoeder & Remer, 2007). For example, Schoeder and Remer (2007) examined the mediational role of perceived social support on caregiver strain in family dyads of youth with Tourette's Syndrome. They concluded that perceived social support partially mediated the relationship between having a youth with Tourette's Syndrome and caregiver strain. The current study's findings were also supported by Van den Heuvel et al. (2001) and Tak and McCubbin (2002) where social support presented as a resiliency factor having positive influences on familial stress. Although this study's findings are not generalizable to other psychiatric conditions, they suggest that perceived social support is negatively associated with caregiver strain, and in addition, may act as a potential buffering variable between comorbid symptom severity and caregiver strain in youth with depression.

Implications for Practice

The fact that a relationship exists between comorbid symptom severity, perceived social support, and caregiver strain has broad implications for professionals who work with caregivers of children with depression. Indeed it is critical that youth with internalizing disorders and their caregivers receive optimal support from mental health

providers to ensure favorable treatment outcomes. Failure to acknowledge current caregiver functioning (e.g., strain) may result in decreased caregiver involvement in the treatment process and, ultimately, diminished treatment gains. Mental health professionals can conduct an assessment of caregiver's social support, and when appropriate, incorporate recommendations aimed at increasing perceived social support as a treatment goal for caregivers of children with depression in efforts to decrease overall caregiver strain. Assessing for and providing caregivers in need of assistance an avenue for support may be beneficial to caregiver well-being and by extension, youth treatment outcomes.

Research suggests that many caregivers find talking to others about their parenting problems to be helpful. However, nearly half of parents report that they do not regularly reach out for parenting help (Roehlkepartain, Scales, Roehlkerpartain, Gallo, & Rude, 2002). Mental health providers working with strained caregivers or caregivers with decreased supports may provide parents with resources in their geographic region in efforts to facilitate education and caregiver supports. For example, community supports such as The Circle of Parents Program may offer caregivers an avenue to express emotions with other similarly strained caregivers. The Circle of Parents Program functions to provide caregivers with a sense of emotional connection with others, offer advice and guidance, provide education and resources, and foster caregiver skill acquisition (Gay, 2004). In situations where caregivers find trouble accessing community supports, caregivers find benefit in online support groups specific to their youth's condition (Patterson & Brewer, 2009). In a study of caregivers caring for youth with type 1 Diabetes, Patterson and Brewer found that caregivers preferred and

found benefit in online forms of social support, particularly with parenting strategies related to facilitating adherence to the type 1 Diabetes protocol.

Given that the research suggests that caregiver strain has significant implications on the youth's treatment, this study's finding is noteworthy. For example, higher levels of caregiver strain are positively associated with professional mental health service, and may result in mental health service decisions that may not be in the best interest of youth (Angold, Messer, Stangl, Farmer, Costello, & Burns, 1998). For example, in an investigation of factors that predicted child mental health services, Brannan et al. (2003) found that caregiver strain increases the probability that a child will receive a more restrictive therapeutic environment, experience no gaps in care, and incur higher service costs. Further, caregiver strain is associated with a higher chance of the child or adolescent being placed in a psychiatric hospital (Bickman, Foster, & Lambert, 1996).

Along with strained caregivers being more likely to seek a higher level of care as a first line treatment, it seems logical that caregiver strain may function as a barrier to treatment gains; particularly with problematic youth behaviors. It is well established that disruptive behaviors negatively influence caregiver strain (Bussing et al., 2003). The impact of problematic youth behaviors may foster decreased involvement, poorer communication and decreased overall engagement or avoidance on behalf of the caregiver (Burke, Pardini, & Loeber, 2008). The negative effects of caregiver strain combined with tumultuous family dynamics may have a significant impact on youth treatment trajectories.

Research Implications

Findings of this research suggest several implications for future research. First, much of the current research in the area of depression focuses on the individual

suffering with the disorder. These present findings imply that associated comorbid symptoms actually have implications for more than the person diagnosed with the disorder, namely the youth's caregivers. As these findings indicate, some caregivers of children with depression do suffer from caregiver strain. A logical hypothesis to this finding is that caregiver strain affects the caregiver, the caregiver-child relationship, the child suffering with the depression, and ultimately the efficacy and type of treatment protocols. To build on the last point, research suggests that caregivers experiencing caregiver strain are more likely to seek a higher, more intense, level of care initiated as a first line treatment for their youth. These findings present sound evidence that caregiver strain is an important variable to consider in the overall assessment and treatment protocol of youth presenting with depression.

Fortunately, this research found that caregiver strain is related to perceived social support. That is, that perceived social support attenuates the relationship between comorbid symptoms and caregiver strain. However, there were no significant findings implicating depression symptom severity in predicting caregiver strain. This finding implies that perceived social support is important in lowering caregiver strain levels in caregivers of youth with depression especially in the face of significant comorbid symptoms and has practical clinical implications for the treatment of youth depression. For example, mental health professionals' assessment and treatment protocols could be modified to include caregiver strain and perceived social support assessments. Based on the assessment findings, offering caregivers with support avenues, thus giving them the perception that support is available, could help to lower their caregiver strain levels. Ways in which to enhance perceived social support could

include increasing caregivers' awareness of community or online support systems, as well as actually increasing their support. For example, encouraging caregivers to become involved in their local and national chapters on depression could be an important first step. Several websites on the internet also have the potential to provide support in the areas of education and advocacy on depression, as well as online support groups. Other ways to increase perceived social support not related to depression could include helping to expand and strengthen the caregivers' connections with peers and family members.

Limitations

These findings should be interpreted in light of a number of study limitations. First, a cross-sectional design may limit internal validity given that data is collected on one occasion rather than longitudinally. Thus, given the episodic nature of depression respondents may be influenced by factors occurring at the time of their visit that may not have been present if another data collection had occurred. Furthermore, patients at the clinics may be qualitatively different from the rest of the population with depression. For example, the caregiver-child dyad in this study sought treatment. Thus, the implication for this limitation may be that caregivers may display more strain and children may display more severe depressive and comorbid symptoms than dyads who did not seek treatment. It is also possible that caregivers who did not choose to participate in this study were overwhelmed with strain associated with caring for a youth with depression. Consequently, they may have not wanted to or were unable to participate in this research.

Threats to external validity may also be apparent. Threats may arise out of lack of random sampling. All participants meeting eligibility criteria and scheduled on the

days of data collection were eligible for study participation. Therefore, the research had little control over the representativeness of the sample. Convenience samples, like the one in this study, may limit generalizability to all caregivers of children with depression. In other words, the results may only be generalizable to caregivers who sought and obtained treatment for their child's symptoms. Indeed, our results may be inflated as the most strained caregivers may have sought treatment. Youth in this study were presenting with symptoms severe enough to need treatment. Thus, their treatment required caregiver to interrupt personal time, miss work or neglect other duties, possible financial worries, disruption of family activities, possibly adding to the tiredness/strain in the caregiver. Youth with depression who do not receive treatment may have caregivers who present with less caregiver strain given the lack of therapy and treatment related demands.

Indeed, common method biases can have significant and potentially serious implications for research findings (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In this study, significant results were identified between predictors and criterion variables from the caregiver only. Perhaps, these results could be tied to a self-report bias and may be a product of artificial covariance between the predictor and criterion being completed by the same person (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Podsakoff and colleagues identified four potential causes and confounds of common methodological biases to self-report research: consistency motif, implicit theories, social desirability, and acquiescence biases. The underlying theme of the consistency motif is that people attempt to appear consistent and rational in their responses. Implicit theories and illusory correlations refers to the notion that people possess assumptions

and theories about the relationship between events. Perhaps, prompting about a study's purpose may facilitate such illusory correlations. Knowing that the purpose of this study was to identify strain in caring for youth with depression may have fostered the thought that "I should be strained since I am caring for a child with a disability" and may have resulted in increased ratings of child behavior and personal strain. Social desirability refers to the need to feel socially accepted and wanted (Crowne & Maslowe, 1964). Humans are inclined to present themselves in a favorable view. It is suggested that the desire to be viewed favorably has implications for self-report research (Ganster, Hennessey & Luthans 1983). Thus, some caregivers may have been inclined to underreport the presence of caregiver strain and symptom severity out of the desire to appear less "pathologic". Finally, acquiescence biases refer to the tendency for participants to either agree or disagree with items independent of their content. These subjects are referred to as "yea-saying" or "nay-saying" and may endorse all negative or positive independent of item content. Despite these potential biases the literature suggests that caregivers are the most potent source of information in assessing a youth's emotional and behavioral problem (Achenbach, McConaughy, & Howell, 1987; Duhig, Renk, Epstein, & Phares, 2000). Furthermore, another significant limitation is the grouping of comorbid symptoms into one cluster score. This study did not identify the specific conditions that contributed to more strain. For example, it may be plausible that depression with comorbid conduct related problems may contribute to more strain than depression with comorbid anxiety related problems. Thus, we are unable to decipher if youth presenting with comorbid internalizing disorders impacts caregivers in the same capacity as those presenting with externalizing symptoms. Lastly, the research design

was correlational in nature. Although the comorbid symptom severity and perceived social support were linked to caregiver strain, causation cannot be inferred.

Future Directions

The current study adds to the growing literature on caregiver strain and the mediating role of perceived social support. While this study offers evidence into the association between youth symptoms and caregiver strain and the mediational role of perceived social support, further research is needed to further clarify these relationships. The finding that comorbid symptoms significantly impacts caregiver strain and that perceived social support may serve as a protective factor for strain has broad implications for future research. For example, having an understanding of specific comorbid symptoms that significantly contribute to caregiver strain may help clinicians identify at-risk caregivers.

Previous research suggests that strained caregivers seek treatment more readily than not strained caregivers. It may be beneficial to examine and compare differences in caregivers of children with depression in the general community versus those seeking treatment. Moreover, future studies may want to look at differences between male and female caregivers in how they respond to perceived social support and caregiver strain.

In efforts to further unravel the relationship between caregiver strain, perceived social support, and caregivers of youth with depression, future studies should look at how ethnic and gender differences impact caregiver outcomes. The caregiver strain literature may profit from examining the impact different forms of social support have on family dynamics. For illustration, Kazak and colleagues (2003) determined that specific family attributes (e.g., single parent, having more than one child) are associated with higher risk of strain. Perhaps, various family attributes respond to social supports in

unique and different ways. As previously mentioned, the literature suggests a lack of caregiver-child agreement regarding the report of child internalizing symptoms (King et al., 1997). Indeed, the function of caregiver strain may be a result of the inflated perception of youth symptoms. Thus, clarifying the function of caregiver strain should be a focus of future research.

Finally, an area of future research may be to control for the possibility of rater effects by looking at the relationships between caregiver strain and some other means of quantifying the number and severity of comorbid symptoms. As aforementioned, there are potential problems with having the same person measure the predictor and outcome variable. Perhaps, objective, rather than caregiver rated ratings of comorbid symptoms may attend to the self reporter bias in the current research study.

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BIOGRAPHICAL SKETCH

Jason Gallant was born in Pembroke Pines, Florida and raised in Weston, Florida. He obtained his undergraduate education at Florida State University, where he majored in psychology and minored in child development. Upon receiving his Bachelor of Science in psychology, Jason was admitted as a doctoral student in the School Psychology Program at the University of Florida in 2004. During his doctoral studies, Jason primarily focused on the research and treatment of youth with anxiety spectrum disorders, specifically obsessive compulsive disorder. Jason is currently completing an APA accredited clinical internship at Father Flanagan's Boys Town in Omaha, Nebraska. Upon graduation, Jason will accept a post-doctoral fellowship in the Center for Behavioral Health at Father Flanagan's Boys Town. Jason short term goals are to become licensed as a psychologist and seek employment in a community mental health setting helping children and families with emotional and behavioral problems.