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# Social Support and Youth Psychotherapy Outcomes: Examining Change Processes in Usual Care Settings

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Social Support and Youth Psychotherapy Outcomes:  
Examining Change Processes in  
Usual Care Settings

Robert V. Dindinger

A dissertation submitted to the faculty of  
Brigham Young University  
in partial fulfillment of the requirements for the degree of  
Doctor of Philosophy

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## ABSTRACT

### Social Support and Youth Psychotherapy Outcomes: Examining Change Processes in Usual Care Settings

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A prominent need in youth psychotherapy literature includes the examination of factors related to improved psychotherapeutic outcomes within the context of “real world” clinical settings, where the practice of psychotherapy differs significantly from that in controlled clinical trials. In examining those factors related to improved outcomes in youth psychotherapy, variables related to social support are important to consider. The purpose of the present study was to evaluate youth perceptions of social support as a potential predictor of successful treatment outcomes in a traditional community outpatient treatment setting for youth. In addition, this study examined whether perceptions of social support predicted both youth and parent-reported symptoms. Also examined were differential outcomes predicted by social support for youth with primarily internalizing vs. externalizing symptoms. Youth and parent-reported symptoms were measured using the Y-OQ and the Y-OQ-SR (Y-OQ; Burlingame, Wells, Lambert, & Cox, 2004; Y-OQ-SR; Wells, Burlingame, & Rose, 2003). Perceived social support was measured using the TSM social support subscale for youth reporters. Internalizing and externalizing symptoms were measured using the CBCL. Using a combination of Analysis of Variance and Hierarchical Linear Modeling with a sample of 199 youth, aged 10-17, and their parents, this study examined the relationship between perceived social support and youth progress in therapy. Results revealed that youth perceptions of social support were significantly associated with youth intake symptoms for both parent and youth-reported symptoms. In addition, youth-reported perceptions of social support improved significantly over the course of treatment. Also, increased overall change in perceived social support was associated with decreased overall symptoms for youth reporters. Finally, no significant differences were found for youth presenting with primarily internalizing vs. primarily externalizing symptoms. Examining the associations between perceptions of social support and youth psychotherapy outcomes is an important step toward identifying potential mechanisms of change in youth mental health treatment. The results of this study provide valuable information on the importance of attending to perceptions of social support in the assessment and treatment of youth mental health issues.

Keywords: psychotherapy, psychotherapy research, adolescent, youth, social support, outcomes

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## TABLE OF CONTENTS

Table of Contents .....	iv
List of Tables .....	vi
List of Figures .....	vii
Introduction .....	1
Child/Adolescent Psychotherapy Research .....	4
Mechanisms of Change in Child Psychotherapy .....	7
Social Support and Psychosocial Development .....	10
Social Support and Psychotherapy Outcomes .....	14
The relationship between PSS and psychotherapy outcomes .....	15
Adult psychotherapy outcome findings that may apply to youth .....	15
PSS and psychotherapy outcomes for youth .....	18
Does PSS Change in Psychotherapy? .....	21
Limitations of Previous Research .....	22
Purpose of Study .....	24
Hypotheses .....	25
Method .....	26
Participants .....	26
Measures .....	27
Procedures .....	30
Analysis .....	31
Results .....	33
Hypothesis 1: Correlation of Intake PSS and Intake Symptom Levels .....	35

Hypothesis 2: The Association between Intake PSS and the Rate of Symptom Change .....	37
Hypothesis 3: The Association between Intake PSS and Overall Symptom Reduction .....	37
Hypothesis 4: Perceived Social Support Levels Will Improve over the Course of Treatment .....	37
Hypothesis 5: Improvement in Perceptions of Social Support will be Related to Decreased Symptom Levels over the Course of Treatment .....	39
Hypothesis 6: Internalizing vs. Externalizing Symptoms .....	42
Discussion .....	43
Limitations .....	48
Study Applications and Future Directions .....	50
Conclusions .....	51
References .....	53
Appendices A .....	68

## LIST OF TABLES

Table 1	Intake and Pre- Post- Change Means and Standard Deviations of Y-OQ, TSM, and CBCL .....	33
Table 2	Intraclass Correlation Coefficients for Y-OQ and TSM Variables .....	34
Table 3	Intake PSS Predicting Intake Youth-Reported Symptoms and Rate of Change .....	36
Table 4	Intake PSS Predicting Intake Parent-Reported Symptoms and Rate of Change .....	36
Table 5	Changes in Youth PSS .....	38
Table 6	Covariances and Standard Errors for PSS * Y-OQ-SR & Y-OQ Slope Interactions ...	40
Table 7	Comparison of Internalizing, Externalizing, Combined, and Sub-Clinical Groups .....	43

## LIST OF FIGURES

Figure 1 Comparison of Selected Features in Clinical Trials vs. Clinical Practice .....	2
Figure 2 Average PSS Change Trajectory .....	39
Figure 3 Average Youth and Parent-Reported Symptom Change Trajectories .....	41
Figure 4 Youth-Reported Symptom Trajectory Differences by Different Rates of Change in PSS .....	41



Social Support and Youth Psychotherapy Outcomes:  
Examining Change Processes in Usual Care Settings

It is generally established that psychotherapy is effective in adult populations (Lambert & Ogles, 2004). In recent years, there has been growing momentum to establish the effectiveness of psychotherapy for children and adolescents (Kazdin, 2009). While this research is growing and ongoing, it is much less developed than that of the adult research and resulting literature (Kazdin, 1995). The current consensus, based on more than 1,500 studies which include over 500 methods of treatment, is that psychotherapy for children is approximately as effective as it is for adults (Brown, 1987; Kazdin, 2004, Nathan & Gorman, 2007). The majority of the studies conducted, however, have methodological flaws (Weisz, Jensen, & McLeod, 2005) and are lacking empirical and quantitative outcome measurements (Kazdin, 2004).

One of the greatest challenges that current child and adolescent literature faces is the lack of generalizability to usual care settings. Many researchers assert that there are significant differences between subjects used in research and those who are seen in community clinical practices (see Table 1; Burlingame, Wells, Lambert, & Cox, 2004; Kazdin, 1991; Weisz et al., 2005). Not only does this lead to poor generalizability, but it may lead to negative views of the general body of research for many usual care clinical professionals who facilitate mental health treatment for the majority of people seeking psychotherapy (Burlingame et al., 2004). They may develop a view that the current research findings do not generalize to their practice (Burlingame et al., 2004; Kazdin, 1991).

Clinical trials	Clinical practice
Cases usually recruited for treatment	Cases usually referred for treatment
Cases usually seen in schools	Cases usually seen in clinics or private practice settings
Treatment duration averages 8-10 weeks	Treatment duration averages 6-12 months
Treatment usually provided in groups	Treatment usually provided individually
Parents infrequently involved in treatment	Parents usually involved in treatment
Family infrequently seen in treatment	Family often seen as a unit
Psychodynamic, psychoanalytically oriented, family, and eclectic approaches rarely studied	Psychodynamic, psychoanalytically oriented, family, and eclectic approaches often used
Often screen out potential confounding comorbid disorders	Majority of cases involve comorbidity

*Figure 1.* Comparison of Selected Features in Clinical Trials vs. Clinical Practice. Adapted from table by Kazdin (1991 p. 795) including information obtained from Kazdin (2007)

Extending research into community settings is now recognized as an important and necessary step to lend evidence to current theories, practices, and treatments believed to be effective for children and adolescents (Weisz, Jensen-Doss, & Hawley, 2006). The findings of previous researchers, conducted in laboratories or controlled clinical settings, have often been unsuccessful in generalizing to settings where treatment usually occurs (Kazdin, 1991, 2004; Weersing & Weisz, 2002; Weisz & Kazdin, 2003). As research is conducted in community settings, the findings from such research (as opposed to “laboratories”) may have a greater impact on the utilization and development of psychotherapy methodologies for children and adolescents.

Another key issue in understanding the effectiveness of psychotherapy for children and adolescents is to identify and understand the underlying mechanisms of change that lead to successful therapeutic outcomes. Kazdin (2009) asserted that after decades of research and the identification of many empirically-supported psychotherapeutic practices, it is still not known why psychotherapy works for children and adolescents. He noted that research which is

designed to look at those factors that moderate and mediate change may help to identify mechanisms of change that are common among the many empirically-supported treatments. This may result in greater parsimony, a better understanding of why psychotherapy for youth is more or less effective, and the optimization of therapeutic change in psychotherapy (Kazdin, 2009). In his recommendation for future research on identifying those factors that moderate and mediate the effectiveness of psychotherapy, Kazdin (2009) recommended that researchers identify underlying constructs that are associated with improved outcomes for youth engaged in psychotherapy.

In the spirit of identifying factors related to improved psychotherapy outcomes, perceived social support (PSS) may be important to consider given the relationship PSS has with psychosocial outcomes for youth. Children's reliance on multiple sources and types of social support (SS) makes them vulnerable to influences that they are unable to control (Harfouche, 1979). Potentially detrimental influences may include family mental illness, poor marital and family functioning, and delinquent peer groups to name a few (Gearing & Main, 2005; Schreck, Fisher, & Miller, 2004). Compelling evidence suggests a significant relationship between the quantity and quality of SS that children and adolescents perceive and their psychological adjustment (Dishion, 2000; Masten & Coatsworth, 1998; Rhodes, 1994; Roberts, Liabo, Lucas, Dubois & Sheldon, 2004; Warren, Jackson, & Sifers, 2009). Likewise, there is considerable evidence suggesting a relationship between PSS and life outcomes and life satisfaction for at-risk children and adolescents (Hammack, Richards, Lou, Edlynn, & Roy, 2004; Jackson, Kim & Delap, 2007; Jackson & Warren, 2000; Roberts et al., 2004; Warren et al., 2009; Youngstrom, Weist, & Albus, 2003). However, relatively little is known regarding the relationship between PSS and patterns of change in youth psychotherapy.

The purpose of the present study is to evaluate the perception of SS as a moderator and potential mediator of successful treatment outcomes in traditional community outpatient treatment settings for youth. Evaluating those factors that are related to change in psychotherapy may be particularly helpful in furthering the understanding of the mechanisms that lead to change for youth in psychotherapy. In addition, examining these issues in the context of real-world community settings is particularly important for facilitating the generalizability of findings to routine clinical practice.

### **Child/Adolescent Psychotherapy Research**

In the past decade, the number of children and adolescents in need of psychological services has increased at a considerable rate (Appleyard, Egeland, & Sroufe, 2007; Spurgaitis, 2006; Vascellaro, 2004). Although psychopathology prevalence rates for children and adolescents vary by age, sex, disorder, socio-economic status, culture, and ethnicity, estimates range between 14% and 22% (Kazdin, 2003, 2004). In the United States, this equates to approximately 14 million children and adolescents who experience impairment due to significant psychological problems (Kazdin, 2003). Contributing to these high prevalence rates of psychological dysfunction in children is the extent to which children and adolescents experience multiple psychological challenges. For example, children and adolescents who have a psychological disorder tend to have a high rate of comorbidity, with rates from 50% to greater than 70% (Angold, Costello, & Erkanli, 1999; Kazdin, 2004). Not only do children and adolescents tend to have increased distress due to multiple disorders, but there are many children and adolescents who experience sub-threshold psychological challenges that lead to “at-risk behaviors” and social impairment (Kazdin, 2003, 2004). The development and use of

interventions using effective evidenced-based psychotherapies may provide relief to many of these children and adolescents.

Over the last 10-15 years, there has been a greater focus on child and adolescent psychotherapy research. Over 1500 treatment outcome studies have been conducted, with over 40% of those studies conducted since 1990 (Kazdin, 2003). Currently, there are over 500 named psychotherapies being used in the treatment of children and adolescents with psychological disorders (Kazdin, 2007). Among these, many have been established for specific clinical disorders including Attention Deficit Disorder, anxiety, depression, Obsessive Compulsive Disorder, Autistic Disorder, enuresis, and oppositional and conduct disorders (Kazdin & Nock, 2003; McClellan & Werry, 2003).

Increased research and clinical focus on psychotherapy outcomes has led to evidence that psychotherapy is effective for many children and adolescents with a wide range of psychological problems (Kazdin, 2003; Weisz & Kazdin, 2003). Weisz et al. (2006), in a review of meta-analyses, reported a medium to large effect size from .71 to .84 comparing children who received psychotherapy to controls. This indicates, as others have found, that children and adolescents who participate in psychotherapy may receive significant benefits, with a majority better off than those with psychological problems who do not participate in psychotherapy (Kazdin, 2003; Weisz et al., 2006).

Although research has given support for the efficacy of psychotherapy for children and adolescents, relatively little of this research has been conducted in usual care settings where the majority of treatment for children and adolescents takes place (Garland, Bennett, & Rezende, 2005; Kazdin, 2004; Warren, Nelson, Mondragon, Baldwin, & Burlingame, 2010; Weersing & Weisz, 2002; Weisz & Kazdin, 2003). Evidenced-based psychotherapy practices and treatments

are often developed and tested using relatively simple cases, often subclinical, and may be designed for a single disorder with comorbidity often screened out as a control (Weisz et al., 2006). This presents several challenges as children and adolescents in usual care settings often demonstrate more clinical severity with high comorbidity (Kazdin, 2004; Warren et al., 2010; Weisz et al., 2006).

Opponents of evidenced-based psychotherapeutic practices in usual care settings point to a lack of flexibility in those treatments as those therapies are often seen as being so rigid in their implementation that they leave very little room for individualized treatment (Weisz et al., 2006). This may be potentially damaging as children and adolescents with comorbid disorders may require more flexibility to address their unique challenges. Castonguay, Boswell, Constantino, Goldfried and Hill (2010), in their review of potentially harmful practices in psychotherapy, assert that rigid adherence to protocol and the rigid application of psychotherapy techniques can be harmful.

While many studies have found significant benefits for children receiving psychotherapy, reviews of research results in usual care settings have been much less promising, with effect sizes near zero (Weiss et al., 1999; Weisz, 2004). What is particularly concerning is the finding that some children and adolescents who participate in usual care psychotherapy end up significantly worse off following treatment (Lilienfeld, 2007; Castonguay et. al., 2010; Warren et al., 2010). Over 20% of children and adolescents demonstrate significantly increased distress and problems following psychotherapy in some usual care settings (Warren et al., 2010; Warren, Nelson, & Burlingame, 2009).

While there may be many reasons for such findings, researchers and therapists have an ethical obligation to work to mitigate poor outcomes shown in routine care. It is evident that

more research is needed to understand and address the unique challenges that usual care settings offer children and adolescents who participate in psychotherapy. In particular, efforts should be taken to understand those factors that lead to both improved and detrimental outcomes. A focus on examining psychotherapy in the context of usual care setting factors, such as comorbidity, systemic factors, and duration of treatment (see Figure 1), which are often either screened out or different in research trials, may be of particular interest in understanding why many evidenced-based practices fail to generalize to usual care settings. It is likely that research in usual care settings will lead to the development and implementation of more robust and practical treatments that lend evidence to theory, decrease harmful psychotherapy outcomes for many children and adolescents, and improve the outcomes for many more.

### **Mechanisms of Change in Child Psychotherapy**

In addition to the need for further outcome research in community settings, an important need in the literature is to develop a better understanding of the moderators and mediators related to positive change in psychotherapy. To date, there is little understanding of why therapy works (Kazdin, 2007). This is problematic, as a lack of knowledge about the factors that facilitate change hinders progress in developing effective psychotherapies for children and adolescents. Kazdin (2008) asserted that the question of how psychotherapy leads to change may be the most pressing question in child and adolescent psychotherapy research today. While there have been many ideas proposed, currently evidence is lacking to support hypothesized mechanisms of change—key processes or events that are causally linked to change and in turn are the methods by which change comes about (Kazdin, 2007, 2008). To begin to answer this question, it has been proposed that researchers should focus on discovering the mechanisms in psychotherapy

that underlie positive changes in child and adolescent treatment (Kazdin, 2004, 2008; Weersing & Weisz, 2002; Weisz & Kazdin, 2003).

There are several reasons why it is important to understand the mechanisms that lead to change in individuals who participate in psychotherapy. First, there are many psychotherapies that have shown evidence that they are effective in relation to comparison groups, such as no-treatment or waitlist controls. Understanding the key mechanisms of change that these therapies have, or what they have in common, may lead to the development of optimized treatments that incorporate proven mechanisms which promote change. Second, by identifying key change mechanisms, therapists can be guided in their treatment implementation. This is important as individualized treatment practice often requires a therapist to make adjustments to treatment protocols. Understanding the mechanisms that are influenced by psychotherapy may help guide therapists in their decisions as to what to emphasize in treatment (Kazdin, 2008). Third, as understanding of change mechanisms increases, researchers will be able to identify, improve, and devise strategies that may improve mental health outcomes for children and adolescents (Kazdin, 2008).

Kazdin (2007) asserts that research needs to be conducted to identify both moderators—a characteristic that impacts the direction or strength of the relationship between the psychotherapeutic intervention and the outcome—and mediators—an intervening variable that statistically account for, at least in part, the relationship between the initiation of psychotherapy and the outcome—which are important for understanding change and are often linked in their impact on change in psychotherapy. For example, many researchers (Karver, Handelsman, Fields, & Bickman 2005; Kokotovic & Tracey, 1990; Moras & Strupp, 1982; Shirk & Karver, 2003), have found that a youth's ability to form quality relationships with supportive others



(family, friends, teachers) moderates their ability to form a strong therapeutic alliance during psychotherapy. In turn, the ability to develop a strong therapeutic alliance in psychotherapy has been shown to statistically account for a portion of change in psychotherapy, with a stronger working alliance predicting greater symptom reduction (Mallinckrodt, 1996). In this example, the moderator, an ability to form quality relationships, impacted the strength of the relationship of the mediator (working alliance) which statistically accounted for, at least in part, reduced symptoms in psychotherapy.

Kazdin (2003) proposes that research that focuses on mediators is a key step in uncovering the specific mechanisms that may underlie them. Some of these mediators have been identified and research is ongoing to uncover why they are associated with change. These mediators include the working alliance, decreased negative thoughts and metacognitive awareness for depression, and the reduction in dietary restraints for bulimia nervosa (Johansson & Hoglend, 2007; Kazdin, 2009). Kazdin asserts that the first step in uncovering a potential mediator is that the mediator candidate (A) must be shown to have a strong relationship with the psychotherapeutic intervention (B) and observed therapeutic change (C) (Kazdin, 2007).

Early examinations looking at mediator candidates would likely use research designs that explore the coexistence and covariance of the mediator candidate with psychotherapy and psychotherapy outcomes. Early studies would also examine other potential covariates (i.e. other constructs) that may account for the observed variation in psychotherapy outcomes. These preliminary studies would set the groundwork for later experimental designs that will provide a more causal link and determine if the mediator candidate is a likely mediator.

There are many who are conducting research on factors related to psychotherapy outcomes in clinical trials; however, little of this work has been done in usual care settings

(Weisz et al., 2005). When one considers the difference between the populations in clinical trials and usual care settings (see Table 1), it is likely that extending this research to community settings may be beneficial. It is likely that therapies validated by clinical trials miss many of the key variables related to change in usual care settings (Burlingame et al., 2004; Kazdin, 1991). To have a better understanding of the underlying mechanisms of change related to improved psychotherapy outcomes, it will be important that research looking at these variables focuses on the settings in which treatment usually occurs (Kazdin, 2003; Kazdin, 2009; Weisz et al., 2005).

### **Social Support and Psychosocial Development**

One factor that is frequently examined in relation to psychosocial outcomes and which may be an important underlying mechanism of change in child psychotherapy is PSS. Social support is defined as a multi-dimensional construct that consists of relationships, perceptions, and transactions in which individuals provide affection, companionship, moral support, advice, favors, and/or material support to another (Hammack et al., 2004; Jackson & Warren, 2000; Jackson et al., 2007; Warren et al., 2009). SS may be categorized as “actual” or “perceived.” Actual SS is often evaluated by the number of times or duration of the SS provided. There are many factors that influence an individual’s perception of SS—the subjective evaluation (positive or negative) of an individual’s SS—which may include judgments based on the source, size, perceived quality, frequency of contact, and function served by the SS (Warren et al., 2009). PSS is often evaluated with self-report measures asking individuals to rate components of SS on a scale ranging from negative to positive. Research exploring the extent to which children and adolescents perceive the availability of SS from family members, peers, and other adults indicates that PSS acts as either a protective shield against or a predictor of future psychological maladjustment for children and adolescents (Dishion, 2000; Elliott, 1994; Jackson & Warren,

2000; Jackson et al., 2007; Masten & Coatsworth, 1998; Rhodes, 1994; Roberts, et al., 2004; Vitaro, Brendgen, & Tremblay, 2000; Warren et al., 2009).

The impact of SS is evident early in life as children are born and socialized within a set of mutually influential social contexts (Bronfenbrenner, 1979). It may be more appropriately asserted that children are not born alone, but into a parent/child dyadic system (Feldman, Greenbaum, Yirmiya, & Mays, 1996). This first early social relationship is often promoted as essential for the development of many important physical and psychological features (Appleyard et al, 2007; Bowlby, 1977). For example, the developing child relies on parents and/or others for food, shelter, safety, and nurturing. At the earliest stages of a child's awareness, the actual or perceived loss of such support is a significant source of stress, emotional dysregulation, and may lead to separation anxiety and/or attachment and adjustment problems (Schoore, 2001). Early attachment literature and research also posits that a supportive and nurturing relationship early in development with at least one significant person is essential to develop the ability to form healthy relationships throughout life (Bowlby, 1977; Mallinckrodt, 1991; Rhodes, 1994). Consistent with Maslow's Hierarchy of Needs (Maslow, 1943), people need other individuals to help them develop a sense of positive self-worth and self-efficacy (Kenrick, Griskevicius, Neuberg, & Schaller, 2010). Deci and Ryan (2000) assert that early in life children use social engagement, through play, to generate adaptive abilities, develop problem-solving skills, and gain mastery over challenges.

Due to the fact that people acquire many of their skills from social contact, the motivation to share resources with, become connected to, and include others who have successfully acquired skills is high (Boyd & Richerson, 1985; Henrich & Boyd, 1998). Those who perceive a failure to acquire or experience the loss of supportive SS networks may pay a psychological price.

Research has found that individuals who perceive rejection from SS networks have activated neural circuits that are the same ones used to register physical and emotional pain (Eisenberger, Lieberman, & Williams, 2003; MacDonald & Leary, 2005).

Based on the aforementioned foundation of SS that development relies on, it is not surprising that a positive perception of SS is one of the most widely reported predictors of adaptive behavior and positive outcomes in youth (Masten & Coatsworth, 1998). When a child or adolescent has the perception of supportive social networks, they have a greater ability to cope with the many challenges they may face (Masten & Coatsworth, 1998). SS from parents or immediate caregivers has been linked to improved academic outcomes, behavioral and emotional gains, and an increased ability to connect and maintain relationships with others (Mallinckrodt, 1991; Richards, Bowers, Lazicki, Krall, & Jacobs, 2007). Conversely, when children and adolescents perceive a lack of SS they tend to have lower life satisfaction and are at a greater risk for maladjustment and psychosocial problems (Dembo, Wareham, Poythress, Meyers, & Schmeidler, 2008; Dishion, 2000; Rowe, Liddle, Greenbaum, & Henderson, 2004; Vitaro et al., 2000).

Studies have shown that the perceived quality of SS, including such factors as shared values, family cohesiveness, parenting style, warmth, nurturing, emotional expressiveness, tenderness, consistency, emotional investment, controlling behaviors, intrusiveness, and criticism, have all been found to be related to differential outcomes, including adaptive and maladaptive behaviors (Appleyard et al., 2007; Gearing & Main, 2005; Hammack et al., 2004; Mallinckrodt, 1991). Children who perceive their parents as close tend to feel more emotionally supported and use that support to shield themselves during times of stress (Hammack et al., 2004). Alternatively, the perception of intrusive and controlling parents is related to lower SS

satisfaction (Mallinckrodt, 1991). Sroufe, Egeland, Carlson, and Collins (2005) assert that children learn from the quality of interactions they have with SS figures in their life and when they perceive aversive interactions, they recreate the same perceived aversive interactions in their future relationships.

While early developmental problems may result from poor SS, compensatory influences from peers, extended family, and mentors later in life can have righting effects that improve outcomes for the developing child. As children transition from childhood to adolescence they begin to develop independence from their immediate family and rely on friends and peers for their chief source of SS (Levitt et al., 2005). This change provides an additional coping mechanism as adolescent peers are now more capable sources of SS and are better able to provide the emotional support needed to assist their peers in managing stressful life events (McQuaid, 2005).

Perceptions of SS from extended family members (i.e. uncles, aunts, cousins, and grandparents) and other adults (i.e. teachers, coaches, other community mentors) has been shown to fill gaps left by inadequate or nonexistent immediate family and peer support (Furman & Buhrmaster, 1992; Levitt et al., 2005; Tinsley & Parke, 1984). Levitt et al., (2005) examined the relationship between various sources of SS (immediate family, extended family, and peers) and outcomes during a transition period from grade school to middle school for 782 children. It was found that during this transition, a time when children are developing a social identity and perceive peer SS as uncertain, those children who perceived greater extended family support received a buffering effect from distress (Levitt et al., 2005). This was especially true for girls who tended to rate their extended family as closer than boys. These emerging adolescents with

an increased perception of extended family SS also rated themselves as being less lonely during this transition than those without extended family SS (Levitt et al., 2005).

Other adults, such as school teachers, coaches, and mentors may also be a valuable source of SS for youth who are at risk for emotional and behavioral challenges. A study by De Anda (2001), looking at the outcomes of a mentoring program for at-risk urban teens, found that teens who received mentoring were less likely to get in trouble, felt like they had a supportive adult to help them, and were less lonely. De Anda and others assert that adult mentors who provide at-risk youth access to social/emotional support resources not otherwise available to them can foster positive behavioral and attitude changes (De Anda, 2001; Rhodes, 1994; Roberts et al., 2004). DuBois, Holloway, Valentine, and Cooper (2002), in their meta-analytic review of 55 mentoring programs, found that most children benefit from the addition of a mentor. This was especially true for youth from backgrounds of environmental risk and disadvantage who are more likely to perceive lower or poor quality SS networks (DuBois et al., 2002).

The available literature suggests that PSS is an important factor related to the physical and emotional well-being of children and adolescents. Children and adolescents who perceive low or poor quality SS are at risk for a variety of developmental, social and psychological challenges. When they gain or have the perception of increased SS resources, they tend to have increased emotional and behavioral adaptive abilities. The greatest benefit received from SS occurs when multiple sources of support are available to children and adolescents.

### **Social Support and Psychotherapy Outcomes**

Given the broad empirical evidence demonstrating the relation between PSS and general behavioral and emotional functioning of children and adolescents, it is possible that perceptions of SS may play both a moderating and mediating role in youth psychotherapy. Stated another

way, the level of PSS that youth have when they begin psychotherapy may be related to intake symptom level and overall symptom reduction, while added or increased PSS during psychotherapy will be related to increased symptom reduction. Although the literature exploring the relation between PSS and youth psychotherapy outcomes is very limited, there is encouraging evidence in the adult literature that may apply to youth (Moras & Strupp, 1982; Bankoff, 1996; Ezquiaga, Garcia, Bravo, & Pallares, 1998). In addition, some research has explored youths' perceptions of the SS provided by their parents (Hemphill & Littlefield, 2006; Waugh & Kjos, 1992; Yorgason, McWey, & Felts, 2005).

**The relationship between PSS and psychotherapy outcomes.** Important aspects of psychotherapy, such as a child's ability to form relationships, problem solve, and exhibit adaptive behaviors have been empirically linked to perceptions of SS (Deci & Ryan, 2000; Keller, Zoellner, & Feeny, 2010; Mallinckrodt, 1991; Masten & Coatsworth, 1998). For example, youths' positive perceptions of SS have been associated with an increased ability to form a good therapeutic relationship, which in turn has often been found to be predictive of more positive psychotherapy outcomes (Horvath & Bedi, 2002; Karver et al., 2005; Keller et al., 2010). Children with greater perceived access to SS may exhibit improved problem-solving and adaptive behaviors during psychotherapy, helping them to overcome many psychosocial challenges contributing to pathology. Also, SS has been linked to an increased ability to handle stress and deal with challenges (Hammack et al., 2004; Masten & Coatsworth, 1998), which may be extremely helpful in engaging traumatic and challenging issues during the psychotherapeutic process.

**Adult psychotherapy outcome findings that may apply to youth.** PSS has been associated with therapeutic outcomes for adults (Moras & Strupp, 1982). Such findings may also

extend to youth. For instance, adults who have the perception of a supportive family have an increased likelihood of meeting goals set in therapy (Bankoff, 1996). Bankoff and Howard (1992) assert that individuals with supportive social networks gain important functional interaction skills that follow them into the therapeutic environment and improve such things as the therapeutic bond, patient self-relatedness, and the attaining of therapeutic goals. Research exploring adult perceptions of their social networks has demonstrated that adults with more positive perceptions of support available from their social networks do better in psychotherapy (Bankoff & Howard, 1992). This finding was especially predictive of establishing a more productive therapeutic relationship and appeared to be more predictive of outcomes in the initial phases of therapy (Bankoff & Howard, 1992). This may indicate that eventually a patient's SS deficits may be overcome in psychotherapy.

A majority of the available literature on PSS and specific treatment outcomes comes from studies examining the relationship between SS and treatment outcomes for adult depression. Positive PSS is predictive of successful psychotherapy outcomes for depression (Ezquiaga et al., 1998) while a perceived deficit in SS is predictive of later relapses into new depressive episodes (Sherbourne, Hays, & Wells, 1995). Lara, Leader, and Klein (1997) reported that an individual's positive perception of SS was associated with recovery from depressive episodes and later depressive symptoms. Individuals with perceptions of low SS were associated with more severe subsequent depressive symptoms (Lara et al., 1997).

In studies investigating depression in elderly adults, an increase in perceived SS and actual SS, as measured by the Duke Social Support Index, was related to the reduction of depressive symptoms and an increased ability to function (Hays, Laurenceau, Feldman, Strauss, & Cardaciotto, 1997; Hays, Steffens, Flint, Bosworth, & George, 2001). The more depressed



elderly clients were, the greater benefit they received from increased PSS. While PSS was found to buffer the effects of depressive symptoms, it is unclear whether PSS played a direct role, or whether the increase in functioning was the primary factor related to symptom reduction (Hays et al., 2001). Whatever the chief variable was, both findings are encouraging and show the benefit of increased PSS and actual SS.

Out of the many sources of available PSS studied in the adult literature, perceived family support may be the most researched. Perceptions of supportive families have been linked to improved outcomes for depression (Parker, Holmes, & Manicavasagar, 1986) even when accounting for confounding variables such as dysthymia, neuroticism, and the initial level of depression (Lara et al., 1997). When SS is perceived to be aversive, especially from a significant other, there is a greater likelihood of depression that is non-remittent (Krantz & Moos, 1988).

Other specific treatment outcomes for adults engaged in psychotherapy have been linked with PSS. For example, schizophrenic patients who perceived their social networks as good, as measured by the Interview Schedule for Social Interaction, at the time of admission, had faster recovery from clinical symptoms and were discharged sooner, compared to schizophrenic patients who perceived their social networks as poor (Hultzman et al., 1996). Also, poor quality PSS, in the form of expressed emotion, was related to the increased reoccurrence of the negative symptoms of schizophrenia compared to those with less aversive social networks (Hultzman et al., 1996). Increased abstinence from substance use during addiction treatment was also found for those with the highest levels of PSS (Beattie & Longabaugh, 1997). For elderly patients with depressive symptoms, greater levels of PSS were related to increased adherence to medication (Voils, Steffens, Flint, & Bosworth, 2005). Each of these findings shows that PSS may play a role in improved psychotherapy outcomes for adults. It seems reasonable that these results may

extend to children and adolescents who often have a greater reliance on others to meet their basic needs.

**PSS and psychotherapy outcomes for youth.** Findings in the parenting literature have consistently shown the benefits of perceived and actual parental support in youth psychosocial adjustment. In recognition of these findings, many mental health providers have pushed for the inclusion of parental support in all aspects of child and adolescent treatment since the 1980's (Richards et al., 2007). Recent research has shown that this move is proving to be effective (Richards et al., 2007; Yorgason et al., 2005).

Studies have found that positive support from parents is predictive of improved treatment outcomes. Hemphill and Littlefield (2006) conducted a study evaluating child and family factors that predict psychotherapy outcomes. Participants included 106 children (ages 8-12) consisting of 85 boys and 21 girls who were referred by their parents for primarily externalizing behavioral problems. Participating children engaged in group psychotherapy (group  $n = 4-8$ ) following a cognitive behavioral therapy model at multiple sites, including community mental health centers, schools, and a university-based clinic. Mean levels of children's behavioral problems, as measured by the Child Behavior Checklist (CBCL), was generally borderline to clinical range. Participating parents received parent training to improve their parent-child interactions, including training in communication and conflict resolution, thus potentially increasing the quality of SS they could provide.

Hemphill and Littlefield (2006) found that perceived positive interactions between the parent and child, as measured by a single-rated item indicating how well the parent perceived parent/child interactions, was predictive of a reduction of both externalizing and internalizing behaviors as measured by the CBCL. This association was even stronger when the parents

showed warmth and affection towards the child (Hemphill & Littlefield, 2006). While it is unclear from this study if PSS improved during treatment (as a result of parent training) and thus had a mediating effect, or if pre-treatment levels of PSS had a moderating effect on the outcome, this finding is encouraging as it begins to address Kazdin's first criterion of identifying PSS as a mediator by looking at its relationship with outcome.

In a related vein, Waugh and Kjos (1992) evaluated the role of actual SS provided to youth engaged in psychotherapy to address depression. Participants included 50 adolescents (mean age 14.7 years) with 26 males and 24 females who were attending an outpatient day program located in the suburbs 50 miles south of the Chicago metropolitan area. Participants were involved in individual, group and family psychotherapy. All participants were diagnosed with a major depressive disorder. They examined the difference between children with high parental support and those with low parental support. Parental support was determined by the number of times parents attended family sessions, contacted the therapist regarding their child's attendance, recorded home behaviors, and were willing to complete behavioral evaluations. They found that those teens who had greater frequencies of support from their parents had significantly improved behavior in school, home, and reduced pathology compared to teens with lower parental support. They also found that improved frequency of parental support and greater perceived engagement in the treatment process predicted a decreased need for future hospitalizations (Waugh & Kjos, 1992).

The extent to which SS is perceived as consistent is also important for improved psychotherapy outcomes. Yorgason et al. (2005) examined factors related to successful outcomes in family psychotherapy. Their study included 111 children and adolescents between the ages of 2-17 ( $M = 12$ ) with 56% of the participants being male living in five adjacent

counties in the Eastern United States. The most frequent diagnoses included conduct disorder, oppositional defiant disorder, Tourette's disorder, autistic disorder, attachment disorders, and expressive language disorder. Twenty percent of the sample had previously been hospitalized due to some form of psychiatric distress. Ninety-six percent of participants were receiving some form of government assistance and were primarily of low socioeconomic status (SES).

Participants were all receiving in-home family psychotherapy. The 17 therapists (masters level and above) used a combination of approaches including multi-systemic, cognitive behavioral therapy, behavioral, structural, play therapy, and solution-focused therapy. Outcomes for the children were measured using pre- and post-test scores on the Child and Adolescent Functional Assessment Scale (CAFAS) and the Preschool and Early Childhood Functional Assessment Scale (PECFAS). The CAFAS and PECFAS also contain subscales which measured the caregivers perceived level of SS. Results related to the PSS provided by immediate family members indicated that children who reported high levels of PSS had the best psychotherapy outcomes, those who perceived very little to no support had the second best outcomes, and those children who perceived inconsistent SS had the worst behavioral and emotional outcomes. One possible explanation of these differential outcomes is that children who receive little to no support seek out other sources of support and rely less on the support of their parents, but when children receive inconsistent support they may not look to other sources of SS, thus lowering their perception of control and the acquiring of adaptive behaviors.

Layne et al. (2001) evaluated a school-based postwar program for war-exposed Bosnian adolescents receiving trauma-focused group psychotherapy. Participants included 87 adolescents suffering from post-traumatic symptoms following exposure to clinically significant trauma (e.g., death of a family member or witnessing death or injury), living in Bosnia/Hercegovina.

Participants received 20 sessions of trauma-focused group psychotherapy. Outcome measures used pre- and post-treatment scores from the reaction index (PTSD symptoms), the Grief Screening Scale, the Depression Self-Rating Scale, and the Child Self-Rating Scale (CSRS; overall functioning, including peer relationships). PSS was measured by the youth's perception of friendly interactions, as measured by the Friend-Peer Relationship subscale on the CSRS. Results showed that reduction in post-traumatic stress symptoms were related to the perception of increased positive peer relations. Also, those who had higher perceptions of positive peer relations tended to have greater satisfaction with the group process.

Most relevant to the present study, Warren and Dindinger (2010) examined youth PSS as one of several potential predictors of youth psychotherapy outcomes in a community mental health setting. They used a repeated-measures design in which data from 349 children and adolescents (ages 4-17) and their parents were collected at intake and at 3 weeks, 2 months, 4 months, and 6 months post-intake. The Multi-Sector Social Support Inventory (MISSI) was used to measure youth's perceptions of SS in four contexts including immediate family, extended family, peers, and other adults. They found that at intake, higher SS was related to lower youth symptom scores; similarly, increases in youth PSS were associated with decreases in youth symptoms over the course of treatment. This is an encouraging finding as the association between increased PSS and increased symptom reduction lends support for PSS being an intervening variable related to improved psychotherapy outcomes for youth.

### **Does PSS Change in Psychotherapy?**

One might assume that the addition of a supportive individual, such as a psychotherapist may be perceived as an increase in SS. Thoits (1986), in her examination of the relationship between SS and an individual's ability to cope with stress, argued that "psychotherapy is the

purchase of social support....” (p. 418). She asserted that psychotherapy is a social interaction that is used for the purpose of coping assistance (Thoits, 1986). Mallinckrodt (1996) proposed that therapists help individuals engaged in psychotherapy overcome interpersonal dysfunctions through the process of working to improve the therapeutic relationship. This relationship work helps to teach important social competencies that clients then transfer to other social relationships (Mallinckrodt, 1996). Mallinckrodt asserted that the increases in social competencies allow individuals to recruit or improve available sources of SS, resulting in an increased ability to handle psychological distress.

Mallinckrodt (1996) recruited 70 university students engaged in psychotherapy in order to examine the relationship between the client working alliance, PSS, and psychological symptoms. Clients received pre-test and post-test measurements of each explored construct. Only clients with complete data who engaged in at least 8 sessions were retained for analysis, resulting in a final participant pool of 28 students. Results indicated that PSS changed over the course of psychotherapy by .35 standard deviations. Mallinckrodt found that about 8% of the variance in PSS was explained by improvements in the therapeutic relationship.

### **Limitations of Previous Research**

Although previous research has led to some encouraging findings, there are several limitations that need to be addressed in future studies. For instance, there are relatively few studies that have examined the factors related to youth psychotherapy outcomes in usual care community settings, reflecting a gap in the literature. This is especially problematic given the significant differences between controlled clinical settings and the community settings where treatment usually occurs (see Figure 1). Research focusing on mechanisms of change in

community settings may lend evidence to current theories and lead to the development of targeted psychotherapies that are effective in these settings.

Another limitation is that the majority of the research examining PSS and psychotherapy outcomes has focused on adult internalizing disorders (Ezquiaga et al., 1998). While 2 of the 5 studies (Hemphill & Littlefield, 2006; Yorgason et al., 2005) highlighted in this review examined youth with externalizing disorders, this research is minimal. This is a serious limitation as externalizing disorders account for the vast majority of youth referrals for mental health services (Barkley, 1990). Also, youth with externalizing disorders tend to elicit negative reactive responses from sources of SS (Johnston, 1996; Wells, Memon, & Penrod, 2006); in contrast, internalizing disorders, such as depression, may have the tendency to elicit more supportive social responses from others (Coyne, 1976). This would indicate the potential for differential experiences of PSS for those with internalizing vs. externalizing disorders. Examining differential psychotherapy outcomes based on internalizing vs. externalizing disorders and their relationship with PSS may be a valuable contribution to the literature by guiding clinicians and researchers in the formulation of targeted interventions and the implementation of individualized treatments maximizing the influence of PSS.

Furthermore, the majority of studies only collected data at two times points—pre-treatment and post-treatment. The previous studies also used primarily Pearson correlations, analysis of variance (ANOVA) and/or analysis of covariance (ANCOVA). For example, Layne et al., (2001) used Pearson correlations to compare group scores on positive peer relationships and treatment outcome measures only using a pre- and post-test. Yorgason et al., (2005) used ANOVA to evaluate the relationship between the caregiver support subscale on the CAFAS and treatment outcomes, also only using pre- and post-test data. Waugh and Kjos, (1992) used

ANCOVA to compare post-test scores for subscales of parent involvement and treatment outcomes. This analytical method, though effective at measuring overall change for groups, may miss variations of change that take place between pre- and post-test measurements. For example, previous psychotherapy research has demonstrated that change in psychotherapy is non-linear, with the greatest decrease in symptoms happening in the first few sessions (Hayes, Laurenceau, Feldman, Strauss, & Cardaciotto, 2007; Laurenceau, Hayes, & Feldman, 2007). Collecting multiple data points, especially in the first few sessions, may show a relationship between PSS and rate of symptom reduction. Also, other statistical models, such as Hierarchical Linear Modeling (HLM), are able to examine change at the individual level prior to aggregating data, allowing for analysis of both fixed and random effects.

Hemphill and Littlefield (2006) used HLM analysis to compare pre- and post-test outcomes in relation to parent support. However, data collection was completed at only two points, lacked a comparison group, and did not look at individual trajectories of change. In contrast, a study presented by Warren and Dindinger (2010) used HLM and had multiple points of data collection to account for these types of limitations. It was found that changes in youth PSS were associated with changes in youth symptoms over the course of treatment. This appears to be an effective design and further research should consider following this methodology.

### **Purpose of Study**

Given some of the limitations of the previous research, the primary purpose of this study was to examine the relationship between youth PSS and psychotherapy outcomes in usual care settings. Within this overall purpose, the primary aims were: 1) examine the association between intake PSS and intake youth symptoms; 2) to examine how intake PSS predicts the rate of symptom change; 3) to examine the degree in which intake PSS predicts overall symptom



reduction; 4) to examine if changes in youth PSS occur over the course of treatment; 5) to examine how changes in PSS are associated with changes in youth symptoms; and 6) to examine how each of the previous aims may be different for individuals whose presenting concerns are predominantly internalizing symptoms or externalizing symptoms. The exploration of these aims is a step towards an increased understanding about how psychotherapy for youth works in usual care settings. It is hoped that the findings of this study will add to the current literature and provide significant clinical benefits to future youth psychotherapy research and clinical practice by providing support for the relationship between PSS and youth psychotherapy outcomes.

### **Hypotheses**

Based on the literature summarized above and the aims of this study, the following hypotheses were offered:

1. Perceptions of intake SS will be negatively correlated with intake symptom levels.
2. Intake PSS will be associated with the rate of symptom reduction with lower PSS levels being associated with the greatest rate of symptom reduction over the course of psychotherapy.
3. Intake PSS will be associated with overall symptom reduction with lower PSS levels being associated with the greatest overall reduction in symptoms over the course of psychotherapy.
4. PSS levels will improve over the course of treatment.
5. Improvement in PSS levels will be associated with decreased symptom levels over the course of treatment.

6. In examining the relationship between PSS and youth symptoms in each of the previous hypotheses, stronger associations will be observed for individuals whose presenting concerns are predominantly internalizing symptoms vs. externalizing symptoms.

### **Method**

This study is part of a larger research program examining factors in child and adolescent psychotherapy which are believed to be predictive of improved psychotherapy outcomes.

#### **Participants**

One hundred and ninety-nine youth referred for treatment, ages 10-17, and their primary caregivers, were recruited for participation in this study from three usual care community mental health centers. The community mental health centers were located in the Intermountain West which serves a community of approximately 530,000 people. At their initial intake appointment, clinic staff introduced potential participants to research assistants who informed them of the study and asked them to participate in research which explored factors that may predict or enhance treatment outcomes in youth receiving psychotherapy. Participants were required to be able to read and speak English to participate in the study. Participation was completely voluntary. Over 90% of those recruited agreed to participate.

Demographics of the 199 youth and their parents were representative of the population in the Intermountain West region, with greater representation of minority and low socioeconomic status individuals (United States Census Bureau, 2010). Approximately 59% of the sample self-identified as being male, 40% self-identified as being female, and 1% did not self-identify as either male or female. The average age of participants was 13 ( $M = 13.33$ ,  $SD = 2.15$ ). Ethnicity of the population was approximately 79% Caucasian, 12% Hispanic/Latino, 3% Asian/Pacific Islander, 2% African-American and 4% other. Participant diagnosis data was not collected, but

based on measures given, participants presented with a wide range of mental health symptoms, including both internalizing and externalizing symptoms, with the majority of participants having a multiple range of symptoms consistent with multiple disorders.

## **Measures**

**Outcomes.** The Youth Outcome Questionnaire-2.01 (Y-OQ; Burlingame et al., 2004; Burlingame et al., 2001) has 64-items (using a 5-point Likert-like scale) that are completed by a parent or guardian. It takes approximately 8-10 minutes to complete and asks for those completing it to rate functioning over the past week. The Y-OQ was specifically designed to be sensitive to changes in client symptoms over time. Total score ranges from -16 to 240 with higher scores indicating greater symptom levels, distress and pathology. The cutoff score of 46 or greater indicates significant dysfunction and a change in 13 points over time indicates reliable change (Burlingame et al., 2004).

The Y-OQ has a four-week test-retest reliability of .83 and an internal consistency reliability of .97. Concurrent validity of the Y-OQ with the Child Behavior Checklist (CBCL; Achenbach, 1991) and the Conners' Parent Rating Scale (CPRS; Conners, Sitarenios, Parker, & Epstein, 1998) ranges from the .80s to the low .90s. The Y-OQ has good discriminant validity in distinguishing between clinical and non-clinical samples. It is commonly used for tracking treatment outcomes and assessing distress in clinical populations (Burlingame et al., 2004).

The Youth Outcome Questionnaire Self-Report (Y-OQ-SR) is a parallel version of the Y-OQ completed by adolescents ages 12-18. The questions on the Y-OQ-SR were rephrased (based on the Y-OQ) in the first person and take approximately 7 minutes to complete (Wells, Burlingame, & Rose, 2003). Both the Y-OQ and the Y-OQ-SR are typically administered at intake and prior to each weekly therapy session. The Y-OQ-SR has a slightly higher cut off

score of 47, indicating that scores of 47 or higher are indicative of significant dysfunction. The change score is also higher in the Y-OQ\_SR with 18 points over time evidencing reliable change (Wells et al., 2003). The Y-OQ-SR has demonstrated similar test-retest reliability (Burlingame et al., 2004) and internal consistency (.95) as the Y-OQ parent report (Wells et al., 2003; Ridge, Warren, Burlingame, Wells, & Tumblin, 2009). The measure has also demonstrated concurrent validity when compared to other commonly utilized youth self-report measures, such as the BASC-2 and CBCL, with intercorrelations surpassing standards for ‘excellent validity’ (Burlingame et al., 1996; Ridge et al., 2009).

**Psychosocial functioning.** The CBCL is a standardized 113-item questionnaire that uses a 3-point scale to assess 120 problem behaviors exhibited by a child over the previous 6 months. It was used to assess the potential of internalizing and externalizing psychopathology. Cut T-scores of 60 were used for both the internalizing and externalizing subscales based on a Pretty et al. (2008) finding that T-scores of 60 and over for both internalizing and externalizing symptoms on the CBCL capture between 93 and 100% of youth meeting disorder criteria. The CBCL also includes scales of 8 empirically-validated syndromes including withdrawn, somatic complaints, anxious/depressed, social problems, thought problems, attention problems, delinquent behavior, and aggressive behavior with test-retest reliability ranging from .86-.94 and internal consistency ranging from .78-.97 (Achenbach & Rescorla, 2007). Also included are 6 DSM-oriented scales including affective problems, anxiety problems, somatic problems, attention-deficit problems, oppositional-defiant problems, and conduct problems with test-retest reliability ranging from .82-.91 and internal consistency ranging from .80-.93 (Achenbach & Rescorla, 2007). The CBCL also contains three competency scales (activities, social, and school) which includes items about activities, social relationships, academic performance, chores, and hobbies with test-retest

reliability ranging from .82-.93 and internal consistency ranging from .63-.79 (Achenbach & Rescorla, 2007).

**Social support.** The Treatment Support Measure (TSM) consists of two forms. The TSM-P is a 40-item parent/guardian report measure that contains items aimed at assessing problems with parenting self-efficacy, parent SS, parenting skills, parent distress, and the parent's perception of the therapeutic alliance. The TSM-Y is a 42-item youth self-report measure (for ages 10-17) that contains items aimed at assessing youth self-efficacy, youth PSS, youth motivation for treatment, and the youth's perception of the therapeutic alliance. Each version of the TSM uses a Likert-like scale to measure caregiver and youth perceptions.

Reliability estimates from a community sample of 189 parents of youth aged 4-17 and 120 youth aged 10-17 yielded overall test-retest reliability for the TSM-P and TSM-Y measures to be .92 and .91 respectively. Subscale alpha estimates ranged from .77 to .89 for the parent measure and from .84 to .88 for the youth measure. Test-retest reliabilities for both TSM measures was significant at the .01 level for all items on the parent measure and all but one on the youth measure.

The TSM-Y SS subscale was adapted from MSSSI and contains 15 items, including items from 4 separate domains (immediate family, extended family, peers, and other adults) that had the best predictive value based on a pilot study using the MSSSI (Layne et al., 2009). The TSM-Y SS subscale has a cut score of 42 indicating that youth who score equal or less than 42 are likely to have deficiencies in PSS. Higher scores indicate higher perception of SS (Warren & Lambert, 2009). Comparable to the MSSSI, internal consistency of the TSMY-Y SS subscale was high ( $\alpha = 0.90$ ) in the current sample, with test-retest reliability also showing similar Cronbach's alpha ratings ( $\alpha = 0.90$ ).

## Procedures

The current study employed a longitudinal design to examine the relationship of putative moderator and potential mediator effects of PSS to psychotherapy outcomes. This initial examination of SS as a potential mediator looked for covariation of PSS with psychotherapy outcomes. Laurenceau et al. (2007) recommend taking into account contextual characteristics in determining the timing and rate of measurement intervals. Variables such as the population being studied as well as conceptualization of treatment effect and change were especially important to consider. Also, previous research suggests that change in youth psychotherapy is nonlinear with the greatest decrease in symptoms occurring in the first several sessions (Hayes et al., 2007). Laurenceau et al. (2007) also recommended that measures used to assess mediators and moderators should be given over an appropriate time period and include multiple measurements to examine when effects take place and the degree of the effects. For these reasons, study measures were given across approximately 11 time periods (at intake, at each of the first five sessions, and approximately every three weeks thereafter).

At intake, following an introduction to the study and an offer to participate, participants completed consent forms and an assessment battery, including the appropriate versions of the TSM, CBCL and the Y-OQ, prior to their initial session. The TSM and Y-OQ were administered by research assistants at the clinic before the first five therapy sessions and approximately every three weeks thereafter. Battery administrations took approximately 20 minutes at intake and 15 minutes at each subsequent administration. The participating parent or caregiver and child or adolescent each received \$10 at the 1<sup>st</sup> and 5<sup>th</sup> sessions. Additionally, youth received a small prize each time they completed the forms and families who remained in

the study for 6 months or until treatment was completed (whichever came first) were entered into a drawing to receive 1 of 10 cash prizes of \$100.

The psychotherapy services provided in this setting included individual and family psychotherapy, psychoeducational skill-building groups, and medication management. The therapists were varied in their training and included graduate interns, master and doctoral-level therapists. Therapists used a broad range of therapeutic approaches, with family therapy and cognitive strategies being the most common. No information was given to the therapists to influence the treatment provided.

### **Analysis**

HLM (also known as individual growth curve modeling, multi-level modeling, mixed modeling, random effects regression, and random coefficients modeling) and ANOVA procedures were used to examine the patterns of change in PSS over the course of treatment. HLM was also used to examine associated changes in youth symptoms. The statistical program SPSS was used to conduct the analyses.

HLM procedures were used over other modes as it provided a more flexible framework for the analysis of change in longitudinal data. Most other approaches look at the average group change over time to make linear comparisons. This has a limiting effect of canceling out or omitting significant individual change that may be important to account for. HLM is designed to handle clustered data through nesting. This allowed for examining individual behavior within groups, while accounting for individual attributes as well as aspects of the environment within which individuals function. For example, differences in adolescent psychotherapy outcomes may be partially due to differences in therapists. It seems plausible that participant Y-OQ scores

may have shown a within-therapist correlation for those participants being treated by the same therapist. HLM accounted for these kinds of effects.

While other approaches omit missing data, HLM is not as affected by missing data and permitted subjects who had incomplete data to participate in the analyses, allowing for a more complete data analysis. Unlike most procedures used to study change and discriminate among individuals at a fixed point in time, HLM allowed the number and spacing of data points to vary across time which allowed for linear and nonlinear evaluations of change. This gave HLM an advantage in finding trajectories of change that other models are unable to account for. Finally, HLM simultaneously explained individual patterns of change over time (fixed effects) as well as the combined patterns (random effects) for a sample of individuals. HLM allowed exploration of how individuals change over time and why individuals differ from one another in how they change over time, which was helpful in the attempt to examine PSS as a potential mechanism of change in psychotherapy (Laurenceau et al., 2007).

HLM is an effective analytical method in identifying both moderators and mediators related to change. In examining moderation, if a pre-treatment between-subjects covariate (such as the initial level of PSS) is a statistically significant predictor of the rate or shape of change for a psychotherapy outcome, it is considered a moderator of change (Laurenceau et al., 2007). In examining a potential mediational relationship of PSS with youth psychotherapy outcomes, HLM was used to examine the relationship between the slope and timing of change of the repeatedly measured potential mediator of PSS and treatment outcomes. In effect, the slope of the change in PSS was used to predict the slope and overall outcomes for psychotherapy. In this analysis, the covariances between the intercepts and slopes of the dependent variable were



examined to reveal if the relationship between changes in PSS and changes in youth symptoms were related across time.

ANOVA procedures were used to evaluate overall or total change in PSS and ANCOVA procedures were used to evaluate the relationship between PSS and youth and parent-reported symptoms. These analyses were used to compare sample means to look for significant change and/or relationships for the key variables in the study. In addition, ANOVA/ANCOVA were used to add to the HLM analysis as the evaluation of overall change provided added information that may have been omitted when looking at individual trajectories of change.

### Results

Table 1 provides the means and standard deviations of Y-OQ, TSM, and CBCL scores at intake and the Y-OQ and TSM overall change scores at the end of treatment.

Table 1

*Intake and Pre- Post- Change Means and Standard Deviations of Y-OQ, TSM, and CBCL*

	Mean	SD
Y-OQ	67.84	28.98
Y-OQ Change	-11.59	30.93
Y-OQ-SR	60.79	33.91
Y-OQ-SR Change	-22.87	26.87
TSM-PSS	59.96	11.00
TSM_PSS Change	3.33	10.99
CBCL-Internalize	64.86	9.77
CBCL-Externalize	63.39	9.91

Table 2 provides the Intraclass Correlation Coefficients (ICC) for the dependent variables in this study. The ICC describes the portion of total variance in scores that are due to between-person differences and the portion of the within-person variance that is due to change across time. For example, the ICC for the Y-OQ total was .721, meaning that 72.1% of the total variance in Y-OQ scores was due to between-person differences and 28.9% was due to within-person variances or change over time.

Table 2

*Intraclass Correlation Coefficients for Y-OQ and TSM Variables*

	ICC
Y-OQ	.721
Y-OQ-SR	.722
TSM-PSS	.730

Prior to examination of each hypothesis, it was first determined which mathematical model (linear, quadratic, cubic polynomial, or natural log) was the best fit for examining change over time for SS and youth symptom variables for both youth and parent-reported data. It was determined, following mapping of each mathematical model, that the natural log transformation of weeks in treatment (LNWKS) fit the data best according to fit indices such as the -2 Log Likelihood (N2LL) and the Bayesian Information Criterion (BIC) for all variables. This analysis indicated that perceived change in both parent and youth-reported symptoms and youth-reported PSS followed a logarithmic pattern, with more rapid change occurring at the beginning of treatment and then tapering off at the end. This matched precedents in the literature that suggest that a logarithmic trajectory is a good fit for treatment progress and recovery (e.g. Finch, Lambert, & Schailje, 2001; Lambert, Whipple, Bishop, Vermeersch, Gray, & Finch, 2002;

Spielmanns, Masters, & Lambert, 2006). Therefore, the natural log transformation model was used in analysis for each hypothesis.

### **Hypothesis 1: Correlation of Intake PSS and Intake Symptom Levels**

Intake PSS scores for youth were evaluated as a predictor of symptom intake scores for both parent and youth reporters. Pearson correlations were computed to examine the relationship between intake symptom levels and intake perceptions of SS. Results yielded a significant negative relationship between youth perceptions of SS and intake symptom levels for both youth and parent reporters ( $r = -.615; p < .001$ ;  $r = -.135; p < .05$ , respectively). Based on Cohen's  $d$  interpretation, the magnitude of the relationship between PSS and youth-reported symptoms was large while the relationship between PSS and parent-reported symptoms was small.  $R^2$  was computed for youth and parent reporters ( $R^2 = .378$ ,  $R^2 = .018$ , respectively) to examine the proportion of variance in intake symptoms that can be accounted for by the variance in intake PSS. Results indicated that 37.8% of the variance in youth-reported intake symptoms was accounted for by the variation in intake PSS and 1.8% of the variance in parent-reported symptoms was accounted for by the variation in intake PSS. As reported in Table 3, HLM analysis of the fixed effects of youth-reported intake PSS scores predicting youth-reported symptom scores indicated that for every one point increase in intake YOQSR scores, a 1.63 point decrease in intake PSS scores was observed. Similarly, as reported in Table 4, HLM analysis of the fixed effects of youth-reported intake PSS scores predicting parent-reported symptom scores indicated that for every one point increase in intake YOQP scores, a .684 point decrease in intake PSS scores was observed. These relationships confirmed our first hypothesis.

Table 3

*Intake PSS Predicting Intake Youth-Reported Symptoms and Rate of Change*

Domain	Estimate	Std. Error	<i>p</i>
Social Support			
YOQ-SR Intercept	61.765	2.358	<.001
LNWKS	-9.251	1.118	<.001
TSM_PSS*	-1.631	.192	<.001
LNWKS x TSM_PSS	.125	.096	.196

*Note.* \* = The TSM\_PSS estimate indicates the amount of decrease in youth PSS scores per one unit increase in YOQ-SR scores.

Table 4

*Intake PSS Predicting Intake Parent-Reported Symptoms and Rate of Change*

Domain	Estimate	Std. Error	<i>p</i>
Social Support			
YOQ Intercept	68.162	2.823	<.001
LNWKS	-3.902	1.353	.005
TSM_PSS*	-.684	.216	.002
LNWKS x TSM_PSS	.090	.107	.404

*Note.* \* = The TSM\_PSS estimate indicates the amount of decrease in youth PSS scores per one unit increase in YOQ scores.

### **Hypothesis 2: The Association between Intake PSS and the Rate of Symptom Change**

For hypothesis 2, it was predicted that intake PSS scores would be associated with rates of symptom change, or in other words, the slope of symptoms for both parent and youth reporters. The results, presented in Table 3 and Table 4, indicate that there was no significant relationship between intake PSS scores and rates of symptom change for either youth or parent reporters in the current sample. These findings failed to support hypothesis 2.

### **Hypothesis 3: The Association between Intake PSS and Overall Symptom Reduction**

For hypothesis 3, it was predicted that higher levels of positive PSS at intake would predict overall symptom reduction for both youth and parent-reported symptoms. ANCOVA results, looking at the relationship between higher levels of positive PSS at intake and overall symptom reduction for youth-reported symptoms,  $F(1, 97) = .564, p = .964$ , were non-significant. Similarly, ANCOVA results, looking at the relationship between intake PSS and overall symptom reduction for parent-reported symptoms,  $F(1, 90) = .564, p = .716$ , were non-significant. These findings failed to support hypothesis 3.

### **Hypothesis 4: Changes in PSS over the Course of Treatment**

It was predicted that youth PSS would improve over the course of treatment. Total change scores in youth PSS were computed by subtracting intake TSM-PSS scores from final TSM-PSS scores. Overall, improved PSS ( $M = 3.33$   $SD = 10.98$ ) was observed for the sample. HLM analysis of PSS change over time indicated that there was significant change in youth-reported PSS over the course of treatment (see Table 5). This analysis showed that for each 1-unit increase in LNWKS (the natural log of the number of weeks in treatment), youth PSS levels increased by 1.259 points ( $p = .001$ ) (see also Figure 2). To further confirm HLM results, repeated measures analysis of variance (RM-ANOVA) were computed to compare mean intake

and post-treatment scores on youth PSS. RM-ANOVA for youth-reported pre- and post-PSS indicated that there was significant change in youth PSS across time,  $F(1, 134) = 12.430, p = .001$ . Test of effect size using eta squared ( $\eta^2 = .092$ ) indicated that the amount of observed change in PSS was small. These analyses confirmed our third hypothesis that youth PSS would increase over the course of treatment.

Table 5

*Changes in Youth PSS*

Domain		Estimate	Std. Error	<i>p</i>
Fixed Effects	Intercept	59.085	.313	<.001
	LNWKS*	1.030	.370	.006
Random Effects	Intercept	22.812	1.473	<.001
	Slope	3.495	1.301	.007

*Note.* \* = The LNWKS effect estimate refers to the amount of increase in SS per one unit increase in the natural log of the number of weeks a person has been in treatment.

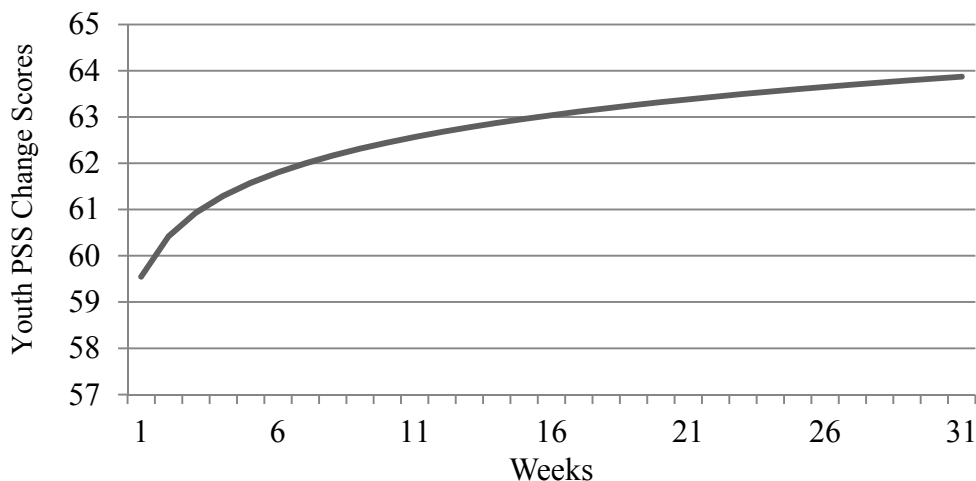


Figure 2. Average PSS Change Trajectory

### **Hypothesis 5: Improvement in Perceptions of Social Support will be Related to Decreased Symptom Levels Over the Course of Treatment**

In hypothesis 5, it was predicted that changes in youth-reported PSS over the course of treatment would be associated with changes in youth and parent-reported symptoms. HLM analyses of these relationships are reported in Table 6. Results indicated that greater increases in PSS over the course of treatment were associated with greater decreases in youth, but not parent-reported symptoms over the course of treatment. Further analysis looking at how total change in youth and parent-reported symptoms were related to total change in youth PSS was completed using ANCOVA comparing mean change scores for youth PSS and youth and parent-reported symptoms. ANCOVA results for changes in youth PSS and youth-reported symptoms,  $F(1, 97) = 5.540, p = .021$ , indicated that overall change in youth-reported PSS (see Figure 2) was related to overall change in youth-reported symptoms (see Figure 3). To examine the direction of this relationship, Pearson correlations were calculated examining the relationship between the change scores in youth PSS and youth-reported change in symptoms. Results revealed a negative

relationship ( $r = -.235; p < .05$ ), indicating that increases in PSS were related to decreased symptoms over the course of treatment. Based on Cohen's D interpretation, the magnitude of the relationship between PSS and youth-reported symptoms was small. R squared was computed ( $R^2 = .055$ ), revealing that 5.5% of the reduction in youth symptoms was explained by the overall change in PSS. ANCOVA results for youth PSS change (see Figure 2) and change in parent-reported symptoms (see Figure 3),  $F(1, 90) = .277, p = .600$ , were non-significant, indicating that there was no significant relationship between total change in youth PSS and total change in parent-reported symptoms. These findings provided partial support for hypothesis 5.

Table 6

*Covariances and Standard Errors for PSS \* Y-OQ-SR & Y-OQ Slope Interactions*

	Estimate	Std. Error	<i>p</i>
TSMSR_SS * Y-OQSR	-12.778	5.101	.012
TSMSR_SS * Y-OQP	-8.976	7.067	.204



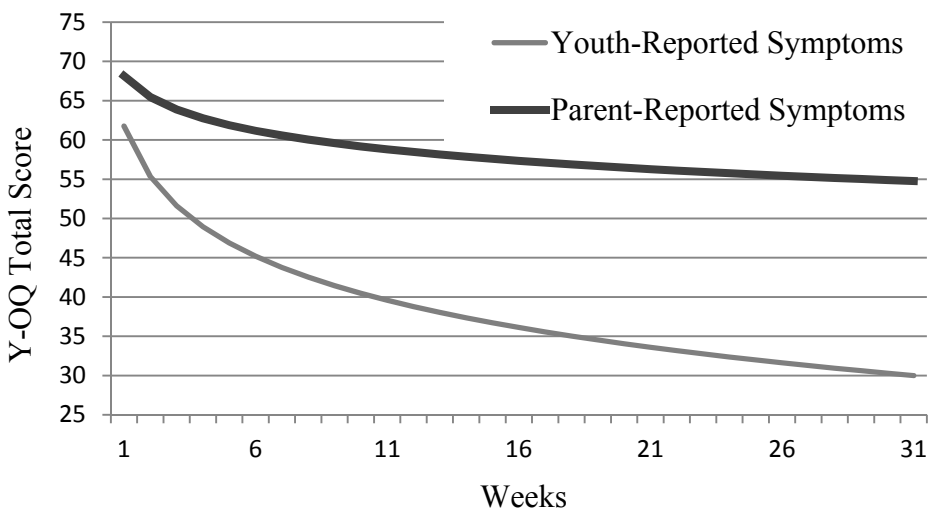


Figure 3. Average Youth and Parent-Reported Symptom Change Trajectories

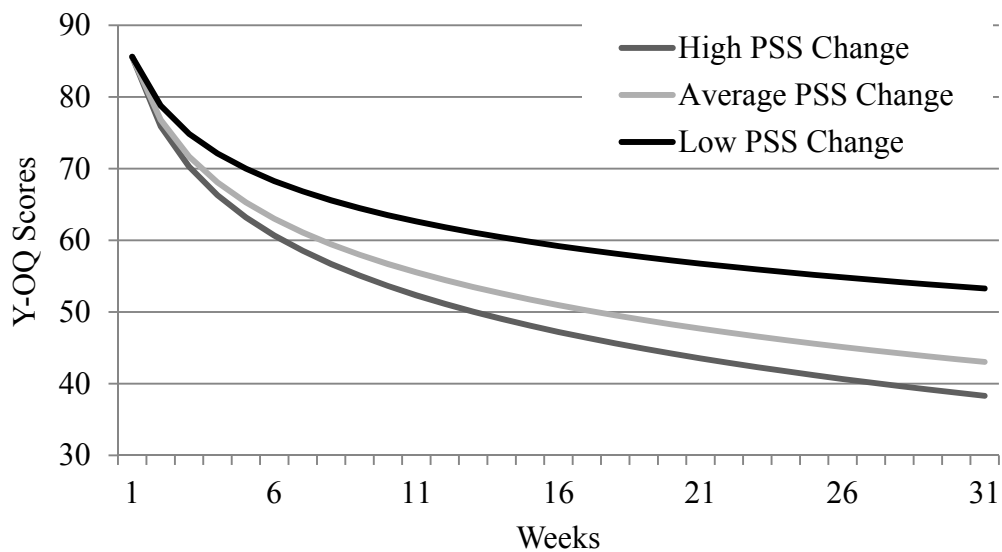


Figure 4. Youth-Reported Symptom Trajectory Differences by Different Rates of Change in PSS

### **Hypothesis 6: Internalizing vs. Externalizing Symptoms**

In hypothesis 6, it was predicted that significant differential findings for each of the previously explored hypotheses for individuals with primarily internalizing versus externalizing symptoms would be found. First, groups were determined based on identifying youth who showed primarily externalizing symptoms and youth who showed primarily internalizing symptoms as measured by the CBCL. Individuals with *t*-scores 60 and higher for internalizing and/or externalizing symptoms were included in the analysis. This cutoff range was used based on previous research by Pretty et al. (2008) which indicated that *t*-scores of 60 and over for both internalizing and externalizing symptoms on the CBCL capture between 93 and 100% of youth meeting disorder criteria. Ninety-nine participants were excluded for meeting criteria for both groups and 35 participants did not meet criteria for either group (see Table 7 for group comparisons). Youth who met criteria for the internalizing group ( $n = 37$ ,  $M = 68.541$ ,  $SD = 4.863$ ) and youth who met criteria for the externalizing group ( $n = 27$ ,  $M = 67.556$ ,  $SD = 5.807$ ) were examined separately using the above analyses for each of the previously explored hypotheses to examine if comparisons between groups could be made. Unfortunately, the externalizing group failed to yield significant findings on any of the previous hypotheses. Due to this finding, comparisons between groups were not possible, precluding any conclusions on the 6<sup>th</sup> hypothesis.

Table 7

*Comparison of Internalizing, Externalizing, Combined, and Sub-Clinical Groups*

Group	n	Internalize		Externalize	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Internalizing	37	68.541	4.863	53.839	5.605
Externalizing	27	55.074	6.403	67.556	5.807
Combined	99	70.647	6.049	69.677	5.845
Sub-Clinical	35	52.057	7.071	51.971	7.943

### Discussion

Previous research and literature has posited that PSS is related to resiliency, life satisfaction and the mental health functioning of youth and adolescents (Jackson et al., 2007; Jackson & Warren, 2000; Masten & Coatsworth, 1998; Rhodes, 1994; Roberts, et al., 2004; Taussig, 2002; Warren et al., 2009). To date it appears that this is one of only a handful of studies to examine the relationship between PSS and youth psychotherapy outcomes. This study attempted to add to the literature by including both youth and parent perceptions of change in youth symptoms, evaluating how PSS may change during psychotherapy, exploring whether such changes are related to psychotherapy outcomes, examining comparative outcomes for those experiencing internalizing and externalizing disorders, and examining these factors in the context of community mental health settings where treatment usually occurs.

The primary purpose of this study was to examine the relationship between PSS and youth psychotherapy outcomes in real world mental health settings. One goal of the study was to evaluate the relationship between PSS and intake symptom levels, the occurrence and rate of

symptom reduction, and overall symptom change. It was also predicted that, on average, adolescents who engaged in psychotherapy would experience an increase in levels of PSS and that such changes would be related to greater symptom reduction. Another goal was to examine the potential differences between youth with primarily internalizing vs. externalizing disorders. Results of the study support several of the study hypotheses. The two most significant findings were that 1) youth PSS improved over the course of treatment and 2) such changes accounted for a portion of the variance in the reduction of youth symptoms over the course of treatment. The design of the study did not allow for the determination of whether changes in PSS preceded or followed changes in symptoms.

Study results largely support the first hypothesis that variations in intake PSS would be associated with variations in youth intake symptoms. Generally, youth who perceived higher levels of SS also had lower symptoms, as measured by youth and parent-reported Y-OQ scores at intake (see Tables 3 & 4). This finding was stronger for youth reported symptoms, with the variations in intake PSS accounting for 38% of the variation in youth-reported symptoms. However, variations in intake PSS only accounted for approximately 2% of the variation in parent-reported symptoms. While the relationship between intake PSS and parent-reported symptoms is statistically significant, it does not likely add any clinical value for assessment and treatment. However, the relationship between intake PSS and youth-reported intake symptoms is likely to be more helpful in identifying perceived deficits in SS for youth who present with higher symptoms. This information may be useful to psychotherapists in the intervention planning phase of psychotherapy.

The second and third hypotheses which stated that intake PSS levels would be associated with the rate of symptom change and overall symptom reduction over the course of treatment

were not supported by the study (see Tables 3 and 4). The reasoning behind the formulation of this hypothesis came, in part, from Warren and Dindinger (2010) findings that perceived extended family PSS was associated with the rate of change in youth symptoms over the course of psychotherapy. The results of this study were unable to extend this finding to more general sources of PSS.

One possible explanation of these findings is that psychotherapeutic interventions may overcome the problems that are associated with poor PSS. Another potential explanation for the failure to find a significant relationship between intake PSS and the rate of symptom change and overall symptom reduction is the lack of power to detect such a relationship. Frazier, Barron, and Tix (2004), in their paper examining the best methods to test for moderation and mediation effects, asserted that HLM may not have the power to detect many moderator effects. While HLM is commonly used for this, the power to detect such effects is .20 to .34, which is significantly lower than the level of .80 which is recommended for detecting such relationships. This may be especially problematic in non-experimental studies such as this one, which generally have less power for detecting interaction effects than do experimental designs. They recommend using Structural Equation Modeling as a better method for detecting such effects (Frazier et al., 2004).

In hypothesis 4, it was predicted that PSS would change over the course of treatment. This hypothesis was supported. Generally speaking, youth in psychotherapy did perceive changes in SS over the course of treatment. This is important considering the previously reported findings that higher levels of PSS are related to increased adaptive behaviors, improved problem-solving skills, better therapeutic relationships, decreased relapse rates, and many other beneficial therapeutic and social outcomes. There are a number of possible reasons why youth

experienced increased PSS. First, the addition of a therapist may be viewed as an added source of SS (Thoits, 1986). Second, the process of psychotherapy may help youth identify sources of SS that they may not have recognized or taken advantage of in the past. Third, youth engaged in psychotherapy may overcome social and behavioral challenges that have hindered them in the making and keeping of friends or have elicited negative and/or aversive social responses from others (Mallinckrodt, 1996). Finally, the therapist may have instituted interventions that resulted in increased social contact. For example, it is common in the treatment of social anxiety for the therapist to help clients overcome their tendency to avoid social situations (Beidel, Turner, & Morris, 2000; Rodebaugh, Holaway, & Heimberg, 2004). Interventions designed to help clients engage with others may have the result of improving a client's PSS. Future studies may benefit from the addition of targeted interventions designed to increase PSS, either by adding actual SS or increasing the awareness of sources of SS already available, to maximize the potential benefits that PSS may provide.

Hypothesis 5 examined whether increases in PSS were related to decreases in symptom levels over time. Based on previous studies that suggest that individuals with increased PSS show increased resilience in the face of adverse situations (De Anda, 2001; DuBois et al., 2002; Kotchick, et al., 1997; Roberts et al., 2004), it was believed that individuals who perceive increases in their levels of SS would have improved psychotherapy outcomes. Over the course of treatment, significant covariations between the trajectories of PSS and youth-reported symptoms were observed. Overall changes in PSS over the course of treatment accounted for approximately 5.5 % of the overall change in youth-reported symptoms. It was observed that increases in perceptions of SS over the course of treatment were related to decreases in youth-reported symptoms. While this relationship was small, it is an encouraging finding as no

instruction was given to the therapists to incorporate interventions designed to increase youth PSS.

While the observed relationship was relatively small, it provides initial support that increasing PSS during treatment could moderate youth psychotherapy outcomes. Future studies may benefit from interventive methods for improving perceptions of SS over time. These interventions may be perceptual, such as improving the recognition of SS already available, or actual, by adding SS, such as providing a mentor. Evaluation of such methods may be extremely useful and targeted interventions to increase youth PSS may yield stronger associations between PSS and symptoms over the course of treatment. In addition, such interventive methods would be the next step in showing causation in exploring the potential of PSS as being a mediator of youth psychotherapy outcomes.

The sixth hypothesis predicted that there would be differences in the outcomes of the previously explored hypotheses based on whether a youth presented with primarily internalizing or primarily externalizing symptoms. Following the use of cut scores to separate participants into groups based on primarily internalizing or primarily externalizing symptoms, sample sizes for the two groups became small (see table 7). In addition, because 27% of the sample only attended one session, this further reduced sample sizes when evaluating change in PSS and symptoms over the course of treatment. In some cases, HLM procedures were unable to be used due to the small sample size. Results of the analyses failed to confirm any of the previous hypotheses for either group. These findings made group comparisons unwarranted. Future studies will likely need to increase their sample size to adequately evaluate the differences between individuals presenting with primarily internalizing versus externalizing symptoms.

## **Limitations**

Although this study yields important findings on the relationship between PSS and psychotherapy outcomes, the findings must be considered in light of the study's limitations. One limitation of this study is that participants were not formally assessed for diagnoses. This is an important consideration given that specific psychological disorders likely have different impacts on perceptions of SS, psychopathology, and an ability to report accurately (Shiple, Jackson, & Segrest, 2010). This relationship could not be examined within this study.

In addition, treatment implementation was not controlled for. That is, therapists varied in psychotherapy orientation and may or may not have followed specific evidence-based treatment protocols depending on presenting problems. In general, treatment followed a more eclectic orientation and involved individual and family psychotherapy where the therapy was catered based on presenting symptoms and clinician preference. Subsequently, it was not possible to know how this may have affected outcomes.

Another limitation of this study was the lack of information regarding how often parents attended sessions with or without their children. The degree of parental involvement and the type of interventions targeted at parents could have influenced perceptions of SS and the treatment outcomes. It is also unknown whether parents were conjointly receiving individual or couples therapy. This lack of information did not allow for conclusions regarding the ways in which parental participation in treatment may have affected both PSS and symptom levels in this study.

This study also relied on self-report measures of SS and symptom levels, which is a potential weakness. Currently, there is a discrepancy in the literature concerning the validity of self-report data for adolescents, with children exhibiting externalizing disorders being less



accurate in the reporting of their symptoms (Shipley et al., 2010) than adolescents with internalizing disorders (Michael & Merrell, 1998). The inclusion of therapist-reported measures may be valuable, but the addition of more objective measures may be a challenge to implement in usual care practices. It is likely that it will be impractical to address this limitation in community mental health settings.

In addition, HLM is an advanced form of correlational analysis that does not indicate causation or account for every potential moderating variable. Increasing the sample size may also be helpful as the majority of the current sample presented with subclinical or combined internalizing and externalizing symptoms. This resulted in small sample sizes for the analysis of participants with primarily internalizing and externalizing disorders and may have lowered the statistical power and led to false negatives in the HLM and ANOVA analyses for these groups. While this study employed adequate sampling to track data over time, the mode number of sessions was 1, with the median number of sessions being 4. This may have been the main reason why significant observations using HLM were primarily found at intake. A larger sample size looking at individuals who completed at least 8 sessions may be more amenable to examining change over time.

This study only used the Y-OQ (parent and youth reports) as measures of youth symptomatology and the TSM youth report as a measure of PSS. While these measures, as previously reported, have good reliability and validity, additional measures or methods of assessment would be ideal to address the limitations inherent in a mono-method approach. However, in routine care it is not feasible to use multiple measures as would be routine in clinical trials, so it is unlikely that this limitation can be overcome in other studies of routine care.

Finally, this study did not use a comparison group, such as a community sample or waitlist control. While this type of addition would have been challenging, due to the number of data collection points, treatment dropout, and settings, a comparison group would have been helpful to evaluate if the observed effects were related to the variables in the study or some external factor. For example, a comparison group would aid in determining if the observed changes in symptoms and PSS were a simple case of regression or progression to the mean, a product of normal maturation, or related to psychotherapy.

### **Study Applications and Future Directions**

This study provides support for attending to youth perceptions of SS in both the assessment and treatment phase of youth presenting for mental health services in traditional community settings. Awareness of this potential mechanism of change may help clinicians attend to perceived deficits in SS. For example, a youth who is distressed may have deficits in PSS and may not feel that they have the social resources to overcome perceived challenges (Masten & Coatsworth, 1998). Interventions focused on improving the youth's perception of SS, such as improving the recognition of SS already available or by adding SS, may be helpful (Warren et al., 2009). Based on these findings, therapists may want to include therapy sessions directly targeted at assessing and evaluating youth perceptions in SS (Cicchetti, Toth, & Maughan, 2000; Gowen & Nebrig, 2002; Hunter, Pearson, Ialongo, & Kellam, 1998; Levitt et al., 2005).

This study provides support and foundation for subsequent research on the association of PSS and youth psychotherapy outcomes; however, more research is needed to further elucidate this complex relationship. For example, through the use of treatment and control groups, questions could be addressed regarding mediation and the directionality of effects in the

association between changes in PSS and changes in youth symptoms over the course of treatment. In addition, very little attention has been devoted to examining the relationship between PSS, externalizing disorders, and youth psychotherapy outcomes. Further research is needed to examine this relationship. This is needed as youth are not generally self-referred for psychotherapy and it is often observed external behavior that leads to parental concern and referral for treatment (Barrett & Rappaport, 2011; Skowrya & Coccozza, 2007). In addition, extending this research to other populations, including residential treatment centers, alternative schools, and clinics servicing specific child mental health populations may prove useful in the pursuit of meeting the mental health needs of youth in distress (Warren & Dindinger, 2010). Finally, it may be advantageous if future research examined specific domains of SS (i.e. immediate family, extended family, peers, mentors, and other adults) and whether children in psychotherapy benefit from PSS differently at different developmental stages.

## **Conclusion**

The current study attempted to address a pressing concern for children receiving mental health services: the need for increased identification and understanding of potential mechanisms of change which lead to improved psychotherapy outcomes. The influence of SS in psychotherapy has received little attention in the literature and increased attention is needed to gain further understanding of this potentially important mechanism of change. This study was able to provide initial evidence that youth PSS generally increases over the course of psychotherapy and that such change is related to a reduction of symptoms for youth in psychotherapy. Focusing on interventions aimed directly at changing perceptions of social support for individuals with perceived SS deficits may be a next step for future research. It is the hope of the present authors that this study may lead to further examinations of PSS and the many

facets that are related to improved mental health outcomes for children and adolescents in usual care settings.

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## Appendix

## Symptom Change and Perceived Social Support Measures

## TSM – YOUTH

ID #: \_\_\_\_\_

Today's Date: \_\_\_\_\_

Your Age: \_\_\_\_\_ Male  Female  Your Race/Ethnicity: \_\_\_\_\_

**INSTRUCTIONS (#1-15):** Please rate how confident you are that you can do each of the things described below. Circle the answer that best describes how you have felt about these things over the **past week**.

	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
1) I can make and keep good friends.	1	2	3	4	5
2) I can get along well with most people.	1	2	3	4	5
3) When I have problems with friends, I can work things out.	1	2	3	4	5
4) I can work well in a group.	1	2	3	4	5
5) I can achieve my goals in life.	1	2	3	4	5
6) I can live up to what my parents expect of me.	1	2	3	4	5
7) I can live up to what I expect of myself.	1	2	3	4	5
8) I can control my temper.	1	2	3	4	5
9) When I have a problem, I can find ways to solve it.	1	2	3	4	5
10) If I make a mistake, I can fix it.	1	2	3	4	5
11) When there are problems in my family, I can do things to improve the situation.	1	2	3	4	5
12) I can get good grades in school.	1	2	3	4	5
13) I can get teachers to help me when I get stuck on schoolwork.	1	2	3	4	5
14) I can get another student to help me when I get stuck on schoolwork.	1	2	3	4	5
15) I can motivate myself to do schoolwork.	1	2	3	4	5

**INSTRUCTIONS (#16-30):** These questions are about your relationships with your **immediate** family (e.g., father, mother, step-parent or guardian, brother, sister), your **extended** family (grandparents, aunts, uncles, cousins) and your friends. Circle the answer that best describes how you have felt about these things over the **past week**.

16) I have an <i>immediate</i> family member (father, mother, brother, or sister) who I can turn to for good advice.	1	2	3	4	5
17) I feel like I “fit in” and belong with the members of my immediate family.	1	2	3	4	5
18) My immediate family appreciates my abilities and helps me to believe in myself.	1	2	3	4	5

Strongly Disagree    Slightly Disagree    Neutral    Slightly Agree    Strongly Agree

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Page 1 of 2

	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree
19) I feel like my immediate family needs me.	1	2	3	4	5
20) I feel emotionally connected to the members of my immediate family (we care about each other).	1	2	3	4	5
21) I have an <i>extended</i> family member (grandparent, uncle, aunt, or cousin) who I can turn to for good advice.	1	2	3	4	5
22) I can count on members of my extended family if I need help.	1	2	3	4	5
23) My extended family appreciates my abilities and helps me to believe in myself.	1	2	3	4	5
24) I feel like my extended family needs me.	1	2	3	4	5
25) I feel emotionally connected to the members of my extended family (we care about each other).	1	2	3	4	5
26) I have family members or friends who can help me in material ways, like providing me with food, clothing, or money.	1	2	3	4	5
27) I feel like I “fit in” and belong with friends my age.	1	2	3	4	5
28) I have a friend who I can turn to for good advice.	1	2	3	4	5
29) My friends appreciate my abilities and help me to believe in myself.	1	2	3	4	5
30) I feel emotionally connected to at least one friend my age (we care about each other).	1	2	3	4	5

**INSTRUCTIONS (#31-35):** These questions ask how you feel about being in therapy. Circle the answer that best describes how you have felt about these things over the *past week*.

31) I'm glad I'm coming to therapy.	1	2	3	4	5
32) The things I work on in therapy will help me in the future.	1	2	3	4	5
33) Coming to therapy is a waste of time for me.	1	2	3	4	5
34) I'm only in therapy because my parent (or someone else) thinks I need help.	1	2	3	4	5
35) I am willing to do my part in therapy to make things better.	1	2	3	4	5
36) I'm not going to change the way I am by coming to therapy.	1	2	3	4	5
37) I'm coming to therapy to get the help I need.	1	2	3	4	5

**INSTRUCTIONS (#36-40):** These questions are about working with your therapist. Circle the answer that best describes how you have felt about these things over the *past week*. It's ok to say how you really feel about these things - your honest answers will help ensure you receive the services you need.

38) I feel like my therapist is on my side and tries to help me.	1	2	3	4	5
39) I look forward to meeting with my therapist.	1	2	3	4	5
40) I don't feel I'm making much progress with my therapist.	1	2	3	4	5
41) I feel like my therapist knows how to help me.	1	2	3	4	5
42) My therapist really listens to me.	1	2	3	4	5