

2015

The Role of Psychological Flexibility on Mental Health and School Functioning of Adolescents with Social, Emotional and Behavioral Problems

Imad Zaheer
Lehigh University

Follow this and additional works at: <http://preserve.lehigh.edu/etd>



Part of the [School Psychology Commons](#)

Recommended Citation

Zaheer, Imad, "The Role of Psychological Flexibility on Mental Health and School Functioning of Adolescents with Social, Emotional and Behavioral Problems" (2015). *Theses and Dissertations*. 2900.

<http://preserve.lehigh.edu/etd/2900>

This Dissertation is brought to you for free and open access by Lehigh Preserve. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of Lehigh Preserve. For more information, please contact preserve@lehigh.edu.

The Role of Psychological Flexibility on Mental Health and School Functioning of Adolescents
with Social, Emotional and Behavioral Problems

Lehigh University

by

Imad Zaheer

Presented to the Graduate and Research Committee
of Lehigh University
in Candidacy for the Degree of
Doctor of Philosophy

in

School Psychology

Lehigh University

August 2015

Copyright by Imad Zaheer
2015

Certificate of Approval

Approved and recommended for acceptance as a dissertation in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Date

Lee Kern, Ph.D.
Dissertation Director
Professor of Special Education
Lehigh University

Accepted Date

Committee Members:

Christine Cole, Ph.D.
Professor of School Psychology
Lehigh University

Susan Woodhouse, Ph.D.
Associate Professor of Counseling
Psychology
Lehigh University

Bridget V. Dever, Ph.D.
Assistant Professor of School Psychology
Lehigh University

Acknowledgements

First and foremost, I would like to thank my mentor, and dissertation committee chair, Dr. Lee Kern, for the support and guidance she has provided me over the last few years. Dr. Kern has provided me with challenging and rewarding experiences that have focused my interests in promoting success for all children through high quality research and practice. I am truly thankful for the faith she has always had in me, and the motivation she has provided to be successful. It has been a privilege to be her mentee throughout graduate school. I look forward to a successful research career where I can make her proud, both as a student, and as a graduate. I hope that I can do this, as a tribute to her and lessons she has given me.

I would also like to express my sincere gratitude to the members of my dissertation committee, Drs. Christine Cole, Bridget Dever, and Susan Woodhouse. I am ever grateful for the time and patience you have shown me throughout the dissertation process and your willingness to work with me even when time was limited. But most especially, I am thankful to each one of you for having guided me through this process and for helping me to appreciate the challenges and creativity required to conduct high quality research.

Finally, I would like to thank my family and friends for the love and support they have shown over the past few years. They have shown tremendous support to me by always encouraging me to move forward and willing to tolerate my absence for extended periods of time. I would also like to thank the friends I have made at Lehigh including my fellow students as well as faculty members. Even though I will be sad as I leave these friends behind, I hope to continue to interact with all of them as colleagues in the future. Lastly, I would like to especially thank my fiancé, who has been relentlessly supportive, providing countless words of encouragement, critical feedback, hugs, and anything I needed while tolerating my physical and emotional absence. Above all, thank you for always being there for me and helping me believe in myself. I love you.

1	Title.....	i
2	Copyright Page.....	ii
3	Approval Page.....	iii
4	Acknowledgements.....	iv
5	Table of contents.....	v
6	List of Tables.....	vii
7	List of Figures.....	viii
8	Abstract.....	1
9	Chapter I: Statement of the Problem.....	2
	9.1 Childhood Mental Health Concerns.....	2
	9.2 Research on Mechanisms of Change.....	3
	9.3 Psychological Flexibility.....	4
	9.4 Advantages of Psychological Flexibility Model.....	6
	9.4.1 Treatment Research.....	7
	9.4.2 Mediation and Component Analysis.....	9
	9.4.3 Basic Science Research.....	9
	9.5 Statement of Purpose: Research Questions.....	11
10	Chapter II: Review of the Literature.....	14
	10.1 Dimensionality of Psychological Flexibility Among Children and Adolescents..	14
	10.2 Psychological Flexibility and Childhood Mental Health.....	17
	10.2.1 Depression.....	17
	10.2.2 Anxiety.....	18
	10.2.3 Emotional Problems.....	20
	10.2.4 Stress and Self-Injury.....	22
	10.3 Psychological Flexibility and Medical Concerns.....	24
	10.4 Quality of life.....	26
	10.5 Psychological Flexibility Across Settings and Social Context.....	27
	10.5.1 Academic and Social Functioning.....	27
	10.5.2 Family Context.....	28
	10.6 Summary and Limitations.....	30
11	Chapter III: Methods.....	33
	11.1 Participants and Settings.....	33
	11.1.1 Participating Students.....	33
	11.1.2 Recruitment.....	34
	11.2 Measures.....	35
	11.2.1 Demographic Information.....	36
	11.2.2 Psychological Flexibility.....	36
	11.2.3 Mental Health.....	36
	11.2.4 School Functioning.....	38
	11.3 Procedures.....	39
	11.4 Analysis.....	41
12	Chapter IV: Results.....	44
	12.1 Exploratory Factor Analysis.....	44
	12.1.1 Assumption Testing.....	44
	12.1.2 Findings of Research Question One.....	44
	12.2 Regression Analysis.....	45

12.2.1 Assumption Testing.....	45
12.2.2 Findings of Research Question Two.....	46
12.2.3 Findings of Research Question Three.....	47
12.2.4 Findings of Research Question Four.....	48
13 Chapter V: Discussion.....	51
13.1 Findings.....	51
13.1.1 Exploratory Factor Analysis results.....	51
13.1.2 Regression analysis results.....	52
13.2 Limitations.....	56
13.3 Implications and Future Research.....	58
13.4 Conclusion.....	63
14 References.....	65
15 Tables and Figures.....	78
16 Appendix.....	96
17 Curriculum Vitae.....	97

List of Tables

Table 1	78
Factor Analysis Variable Characteristics	
Table 2	79
Participant Characteristics	
Table 3	81
Inter-correlations of Independent and Dependent Variables in the Regression Analyses	
Table 4	84
Multiple Linear Regression Analysis Summary for Ethnicity, Income, SPED labels and Treatment & Control Predicting Psychological Flexibility.	
Table 5	85
Multiple Linear Regression Iterative Analysis Summary for Ethnicity, Income, and SPED labels Predicting Psychological Flexibility.	
Table 6	86
Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Quality of Life.	
Table 7	87
Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Behavior Symptoms.	
Table 8	88
Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Academic Achievement.	
Table 9	89
Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Peer Support for Learning.	
Table 10	90
Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Teacher Student Relationships.	
Table 11	91
Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Relevance of Work.	
Table 12	92
Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Future Aspirations.	
Table 13	93
Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Family Support.	
Table 14	94
Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting External Motivation.	

List of Figures

Figure 1.....95
Scree plot

Abstract

Childhood mental health problems have become an increasingly recognized concern, leading to an increased research focus on evidence-based treatments and effective models of service delivery to meet these mental health needs (Kazdin, 2011). However, researchers have argued that while the research on evidence-based treatments and implementation have increased, the research on mechanisms underlying these interventions has lagged behind despite the promise that studying these mechanisms holds for improving interventions and implementation (Nock, 2011). One promising mechanism of change is the psychological flexibility model, which is a transdiagnostic theory of mental health that cuts across different psychological conditions as well as other conditions such as medical concerns that have associated psychological distress. However, psychological flexibility has, to date, largely been studied with the adult population and has limited research support among children and adolescents.

The current study explored the factor structure of psychological flexibility among a population of adolescents with social, emotional and behavioral problems (SEB) as well as the relationship between psychological flexibility and demographic variables, mental health and school functioning variables to further the research on psychological flexibility among adolescents. A total of 73 high school students from Pennsylvania participated in this study. The results indicate that psychological flexibility is a unidimensional construct similar to the construct as used within the adult population and has strong reliability. Additionally, psychological flexibility was found to significantly predict quality of life (QoL) and peer support for learning (school engagement). However, demographic characteristics did not significantly predict psychological flexibility and psychological flexibility did not significantly predict behavioral symptoms and other student engagement subscales.

Chapter 1: Statement of the Problem

Childhood Mental Health Concerns

Childhood mental health is a growing concern both in the United States and globally (UNICEF, 2007; Kieling et al., 2011). U.S. prevalence estimates indicate that approximately 46% of youth experience some form of mental health disorder and 21% experience severe mental health problems (CDC, 2010). Thus, approximately one out of five children has a diagnosable mental health disorder (CDC, 2010; Davis, Young, Hardman, & Winter, 2011; Merikangas et al., 2010). These mental health disorders have profound negative consequences for youth that include health concerns, school and learning difficulties, social problems, and vocational concerns during transition to adulthood (Davis et al., 2011; Merikangas et al., 2010). To add to the burden of childhood mental health problems, most youth do not receive adequate services to address their mental health needs. Estimates indicate that only 21% of youth in need of mental health services actually receive services, leaving 7.5 million children between ages of 6 to 17 not receiving any services at all (Kataoka, Zhang, & Wells, 2002). Moreover, the quality of these services is often unverified, and when it can be verified, it is determined to be poor (Atkins, Frazier, Adil, & Talbott, 2003; Langley, Nadeem, Kataoka, Stein, & Jaycox, 2010).

In response to the need to address childhood mental health concerns, research has focused on the development of evidence-based treatments and effective models of service delivery, especially within settings where they have not traditionally been provided, such as schools (Kazdin, 2011). However, despite the large body of literature focused on developing effective treatments for various childhood mental health concerns and growing research on service delivery models, there is a lack of research on the theory and mechanism of change that underlie these treatments (Rosen & Davison, 2003; Kazdin, 2007).

Research on Mechanism of Change

Researchers have argued that studying the mechanisms underlying mental health treatments is critical for moving beyond simply demonstrating that treatments work, to creating theories of change and identifying active components to show why the treatments work (Kazdin, 2011; Nock, 2011). This increased emphasis on why mental health treatments work, rather than solely focusing on whether or not they work, has several advantages. One main advantage is the ability to link applied research to basic science on core psychological processes involved in treatments. This link is beneficial for making current treatments better by honing in on key active components of treatments and for promoting progressive research programs that can lead to new and better mental health treatments and theories of mental health development (Kazdin; David & Montgomery, 2011). An example of this process is the development of traditional behavioral treatments such as exposure, which were developed based on laboratory principles of behavior that ultimately were used to inform clinical practice with new, effective intervention strategies (Kazdin).

Another advantage of studying the mechanisms underlying mental health treatments is the natural link to transdiagnostic approaches (Mansell, Harvey, Watkins & Shafran, 2009). Transdiagnostic approaches attempt to identify parsimonious principles underlying mental health development, such as emotional regulation, that can be applied across disorders, allowing for broad application across different conditions (Hayes, Villate, Levin, & Hildebrandt, 2011). These approaches also have the advantage of generating theories of development that address healthy and unhealthy development, providing researchers and practitioners principles that can be directly targeted for mental health prevention and intervention (Mansell, et al., 2009).

An additional benefit of identifying the operational mechanisms underlying mental health

treatments is that of improving service delivery. Understanding the key components of treatments can help researchers and practitioners better adapt protocols to new settings without losing the active ingredients that make the treatment effective (David & Montgomery, 2011; Kazdin, 2011; Kazdin & Blasé, 2011). Research on mechanisms of change also provides a pragmatic advantage in terms of dissemination, training, and resource allocation, as practitioners can focus on a few active components, rather than having to learn and use numerous different and unique treatments (Ehrenreich & Chu, 2013). By focusing on these mechanisms of change, practitioners can utilize basic principles and modify the treatments to meet the needs of individual clients and settings. This reduces the burden on professionals in term of training needed to learn numerous treatments, and also reduces the work of those individuals conducting trainings for evidence-based interventions.

Despite the advantages associated with studying mechanisms of change, there has been surprisingly little research conducted in this area (Kazdin, 2011). Moreover, the research that has been done on mechanisms and theory of change has largely been confined to the adult mental health literature. Little attention has been given to mechanisms involved in childhood mental health treatments (Harvey, 2013).

Psychological Flexibility

One of the most promising areas of research on theory and mechanisms of change comes from the psychological flexibility model (PFM). The PFM is a transdiagnostic theory of mental health based on a relational frame theory (RFT), a contemporary behavior analytic account of language and cognition (Dymond & Roche, 2013). The construct of psychological flexibility refers to the acceptance of aversive internal experiences (difficult thoughts, feeling and memories) and flexible behavioral responding despite these aversive experiences. More

specifically, psychological flexibility is defined as a broad set of skills that include the ability to:

“recognize and adapt to various situational demands; shift mindsets or behavioral repertoires when these strategies compromise personal or social functioning; maintain balance among important life domains; and be aware, open, and committed to behaviors that are congruent with deeply held values” (Kashdan & Rottenberg, 2010, p. 1).

This construct has been studied extensively in adult mental health, but only recently has begun to be investigated for childhood mental health concerns (Hayes, Wilson, Gifford, Follette & Strosahl, 1996; Ruiz, 2012).

The PFM proposes that flexible and adaptive behavioral responding towards one's values and goals is suppressed due to the tendency of individuals to avoid unwanted internal experiences, such as painful memories, uncomfortable thoughts, and aversive emotional states (Hayes et al., 2011). This tendency of avoiding unwanted internal experiences, termed experiential avoidance or psychological inflexibility, has two pathogenic pathways. The first pathway focuses on the inability to tolerate aversive internal experiences (thoughts, memories, and emotions), whereas the second focuses on the narrowing of adaptive behavioral responding (Hayes, Strosahl & Wilson, 1999).

For the first component, the inability of the individual to tolerate aversive internal experience, leads to attempts to avoid those experiences, which may provide temporary relief if the avoidance strategy is successful (i.e., distracting oneself by watching TV). It is hypothesized that over time, the aversive internal experiences are maintained or increase in frequency and intensity as those experiences are negatively reinforced by the successful avoidance (Hayes et al., 1996). The second component involves the narrowing of adaptive behavioral responding and is linked to the first, as the avoidance of internal experiences is accomplished by overt behavioral

avoidance. For example, a socially anxious individual may opt out of social events, thereby avoiding the aversive internal experiences of negative self-talk or feelings of anxiety. This overt behavioral avoidance can lead to narrowing of behavioral repertoires due to lack of experience in social settings, making it more difficult to develop social skills that would be adaptive in those settings (Hayes et al., 1996). Taken together, the initial avoidance of aversive internal experiences leads to behavioral avoidance, which provides temporary relief for the individual from aversive internal experiences. In the long run, however, due to the negative reinforcement of internal aversive experiences, these experiences can potentially increase in frequency and intensity, resulting in increasingly negative emotional and behavioral outcomes for individuals (Hayes et al., 1999; Masten & Cicchetti, 2010).

This model is similar to other constructs, such as distress tolerance (used primarily in Dialectical Behavior Therapy), which is defined by the degree of which one finds his or her emotions as overwhelming (Simons & Gaher, 2005). More specifically, distress tolerance is very similar to the first component of psychological flexibility but does not cover the second component of adaptive behavioral responding. Additionally, research on distress tolerance and psychological flexibility has shown that they are distinct constructs, with some initial research indicating that psychological flexibility is a stronger predictor of psychopathology (Iverson, Follette, Pistorello & Fruzzetti, 2012). Also, psychological flexibility is similar to the concept of psychological resilience, which is often defined as the ability of an individual to adapt and recover from stressful or adverse events (Rutter, 2008). No research to date has been done looking at resilience and psychological flexibility but they share common features, including promoting adaptive responding in stressful situations and acceptance of negative emotions rather than attempts to alter them. However, key differences between the two include how they are

studied. Whereas resilience often focuses on the outcome of someone's success after experiencing adversity, psychological flexibility specifically defines that process in terms of accepting difficult internal experiences and committing to adaptive behavioral responses. Moreover, resilience requires the presence of an adverse or traumatic event whereas psychological flexibility does not require any adverse event and focuses broadly on both clinical and non-clinical concerns.

Advantages of Psychological Flexibility Model

As a mechanism of change for mental health concerns, the psychological flexibility model has several conceptual and empirical advantages over other similar constructs. One of the key advantages of psychological flexibility is that it is a behavior analytic construct grounded in contextual variables that can be directly targeted for treatment and prevention programs (Biglan, 2004). Moreover, similar to other behavioral constructs, psychological flexibility can be applied to virtually all areas of behavioral functioning, giving it a very broad scope of application. These include traditional clinical concerns related to mental health and non-clinical applications related to behavioral change, such as improving quality of life, sports, and business (Kashdan & Rottenberg, 2010; Schmaltz & Murrell, 2010). This wide scope of applicability is especially advantageous for children's mental health, which is most often provided in school settings, and includes other areas of development, such as academics and physical health (e.g., addressing test anxiety or procrastination for academics; creating healthy eating habits and consistent exercise habits for health).

Treatment research. In addition to the conceptual advantages highlighted above, psychological flexibility has a large body of empirical support in terms of clinical applications and basic experimental research. Clinically, psychological flexibility has been applied largely as

part of Acceptance and Commitment Therapy (ACT), a modern cognitive behavioral therapy (CBT) designed to address a broad range of mental health concerns by increasing individuals' psychological flexibility (Hayes et al., 1999).

To increase psychological flexibility, ACT focuses on two main targets. The first target is to build acceptance of aversive experiences, allowing the individual to respond more flexibly towards desired goals. Strategies to build acceptance are similar to traditional exposure treatment, where the therapist slowly exposes the individual to a feared stimulus. However, in ACT the focus is on exposure to aversive covert experience without engaging in either the covert or overt avoidance patterns. In contrast, traditional CBT treatments may involve cognitive restructuring or engaging in relaxation exercises that target reduction of the aversive experience, which may serve to provide the individual with another avoidance strategy. As a result, although the traditional CBT strategies are successful, they may engender greater psychological inflexibility in the long run by strengthening the avoidance process that, as the PFM indicates, leads to greater psychological inflexibility.

Once the first target of treatment is adequately achieved, ACT treatment focuses on the second target, which is robust behavioral change aligned with the client's values and goals. To achieve this change and help the client build stronger repertoires of effective behavior, ACT utilizes traditional behavioral strategies such as skills training, shaping and task analysis. The reason why the behavioral change towards valued goals is targeted second in ACT is to make sure the client will successfully tolerate distress in difficult situations and not fall into avoidance patterns due to inability to tolerate the distress in the moment. Taken together, the first target provides analog training towards distress tolerance and the second component focuses on generalization of distress tolerance while engaging in behavior towards one's values and goals.

Research on ACT has demonstrated its efficacy for a wide variety of areas that range from traditional psychopathology and health-related concerns, to positive well-being and quality of life (Ruiz, 2012; Long & Hayes, 2014). More specifically, in terms of mental health concerns, ACT has been successfully applied to a wide range of problems including depression, anxiety, stress, psychosis, substance abuse, smoking, prejudice, burnout, eating disorders, and self-harm (Ruiz, 2012). Research comparing traditional CBT and ACT is mixed, with results indicating that ACT is as or more effective than CBT, depending on what conditions are targeted for treatment (Forman et al., 2012). Additionally, ACT processes have been applied to positive aspects of mental health, such as improving quality of life, where it has been demonstrated to result in better long-term outcomes compared to CBT (Berghoff, Forsyth, Ritzert & Sheppard, 2013; Lundgren, Dahl, Melin, & Kees, 2006). For example, Berghoff and colleagues (2013) found that processes underlying CBT and ACT both predicted quality of life among individuals with anxiety disorders, but the ACT model was a better fit for the data overall. Similarly, Long and Hayes (2013) also found that, although both CBT and ACT processes equally predicted depression symptoms among educators, ACT better predicted quality of life 4 months from the initial data collection. However, as mentioned before, most transdiagnostic constructs including PFM have not been extensively applied to childhood mental health concerns and treatments.

Beyond psychological conditions, ACT also has empirical support when applied to health-related concerns. This includes chronic pain and smoking cessation, which are both very active areas of research for applying the PFM through ACT, and other health conditions, such as stress reduction among cancer and epileptic patients (Bricker et al., 2014; Feros, Lane, Ciarrochi, & Blackledge, 2013; McCracken & Valleman, 2010). Finally, ACT has also been successfully applied in areas unrelated to mental health concerns, such as sports performance, organizational

change, and clinicians' ability to adhere to evidence based practices (Bond & Bunce, 2000; Long & Hayes, 2014; Varra, Hayes, Roget & Fisher, 2008).

Mediation and component analysis. As mentioned earlier, one of the main advantages of studying mechanisms of change is the focus on basic principles that can cut across multiple domains of psychological functioning. In this regard, psychological flexibility has been extensively studied through mediational and component analysis that determines what components of the intervention have an impact on psychological flexibility and if psychological flexibility actually causes the change in behavior (Blackledge & Drake, 2013). In fact, more treatment-based mediational analyses have been conducted on psychological flexibility as compared to other proposed mechanisms of change. Specifically, at least 10 published studies have examined how psychological flexibility mediates change in ACT interventions and 10 additional studies have evaluated the role of psychological flexibility independent of ACT (Blackledge & Drake, 2013). In the latter set of studies, psychological flexibility was shown to be a predictor of change for treatments not specifically designed to target psychological flexibility. These include traditional CBT methods and alternative modern CBTs such as dialectical behavioral therapy (DBT; Arch et al., 2012; Lungua, Harneda, Rizvib, & Linehan, 2014).

Basic science research. Another area of empirical support for psychological flexibility is from basic science research in laboratory settings that provides corroborating evidence for the validity of the construct. This research has been conducted largely within the tradition of experimental analysis of behavior and relational frame theory, and more recently within biological sciences (Levin et al., 2012; Whelan & Schlund, 2013). Specifically, up to 46 experimental psychopathology studies have been conducted to date that provide experimental

support for psychological flexibility as a viable construct (Blackledge & Drake, 2013). These studies assessed the specific components of PFM within the laboratory setting, with both clinical and non-clinical samples, finding theoretically predicted results based on PFM (Blackledge & Drake, 2013). More broadly, in a recent meta-analysis, Levin et al. (2012) reviewed 66 laboratory studies evaluating treatment elements and processes suggested by the psychological flexibility model. The findings indicated that treatment components related to psychological flexibility, such as cognitive diffusion, had large effect sizes with both clinical and non-clinical samples.

Based on the conceptual and empirical advantages of psychological flexibility, it is considered one of the most promising general mechanisms of change for numerous mental health and non-mental health related concerns. However, despite immense support of the construct within the adult psychological treatment literature, there is limited research on how psychological flexibility applies to childhood mental health concerns as well as other key areas of functioning, such as academic skill development. While this limitation is common among childhood mental health research in general, mechanisms of change have become increasingly recognized as vital to improving childhood mental health research and practice (Kazdin, 2011).

Moreover, some research has begun to address this gap in the literature by investigating how psychological flexibility of children is affected by the level of the psychological flexibility of adults involved in the child's life (e.g., parents; Williams, Ciarrochi Heaven, 2012). Other researchers have begun to examine the applicability of ACT among adolescent samples and have found promising initial results (Hayes, Boyd, & Sewell, 2011; Livheim et al., 2014). However, few of these studies have focused directly on children or adolescents with social, emotional, and behavioral problems (SEB), especially externalizing behavior problems. Moreover, the studies

that do focus on children or adolescents with SEB have been limited in scope, focusing on specific psychological functioning rather than broader areas of development such as quality of life and academic functioning.

Statement of Purpose

The current investigation adds to the small but growing literature on the application of the construct of psychological flexibility to adolescents by investigating its role among a sample of high school students with severe SEB problems. This study initially investigated how the construct of psychological flexibility applies to adolescents in terms of its factor structure (dimensionality) and, based on the results of the factor analysis, how psychological flexibility is related to demographic, mental health, and school-related variables. Investigating the factor structure of a measure of psychological flexibility among adolescents before examining the relationship with other variables was important because, depending on the results of the factor analysis, the analysis for this study would be altered (including one predictor versus multiple predictors for psychological flexibility depending on number of factors found). Moreover, if multiple factors are found in contrast to previous literature among adults, the results may indicate that at least among adolescents, the components of acceptance and action are not as closely linked as in the adult population. As such, the research questions addressed in the current study were as follows:

(1) What is the factor structure of psychological flexibility, as measured by the Acceptance and Action Questionnaire-2 (AAQ-II; Bond et al., 2011), for adolescents with SEB problems? Based on underlying theory and previous empirical research with adults by Bond et al. (2011), it is hypothesized that the factor structure will be a unidimensional (one factor) model similar to that found in adult populations.

(2) Does ethnicity, income, special education label and membership in treatment or control group significantly predict higher levels of psychological flexibility or its subcomponents based on the factor analysis, as measured by the AAQ-II, for adolescents with SEB problems? Based on previous research with adult populations by Bond et al. (2011) that demonstrated differential effects on psychological flexibility related to demographic variables, it is hypothesized that the above-mentioned variables will significantly predict levels of psychological flexibility. Specifically, being Caucasian and having higher levels of income are expected to significantly predict higher levels of psychological flexibility due to the advantages in terms of greater mental health service utilization, which has been documented for these groups in the literature (Cummings & Druss, 2011; Elliot & Larson, 2004). Moreover, even though there is no previous research in special education placement and its relation to psychological flexibility, students with special education labels are predicted to have lower psychological flexibility based on the fact that they received diagnoses, presumably indicating greater severity of mental health, behavioral and academic needs. In terms of treatment versus control groups, no significant differences are expected, as the overall study did not find significant differences between these groups on academic and mental health measures.

(3) Does psychological flexibility or its subcomponents, as measured by the AAQ-II, significantly predict psychopathology (Behavior Assessment System for Children, Second Edition; BASC-2) and quality of life (Brief Multidimensional Life Satisfaction Scale; BMLSS) for SEB students? Based upon the previous research with adults showing correlations between higher psychological flexibility and better mental health in terms of lower psychopathology and higher quality of life (e.g., Long & Hayes, 2014; Ruiz, 2012), it is hypothesized that higher levels of psychological flexibility group will significantly predict higher quality of life and lower

psychopathology scores.

(4) Does psychological flexibility or its subcomponents, as measured by the AAQ-II, significantly predict academic achievement (Woodcock Johnson-3; WJ3) and school engagement (School Engagement Instrument; SEI) for SEB students? To date, no research has looked at academic variables such as achievement related to psychological flexibility for an adolescent population. However, an ACT treatment study by Gauntlett-Gilbert, Connell, Clinch, and McCracken (2013) that evaluated school functioning in terms of attendance found a significant positive relationship between students in the ACT condition and school attendance. As such, it is hypothesized that higher levels of psychological flexibility will significantly predict higher academic achievement and school engagement.

Chapter 2: Literature Review

Research on the construct of psychological flexibility has only recently been expanded to childhood mental health concerns. The current literature review found 20 empirical studies related to the psychological flexibility and childhood mental health, with most of the studies published between 2008-2014, and only one study conducted in 2002. The vast majority of the studies (18) directly addressed clinical concerns, with two studies focusing only indirectly on clinical concerns. In terms of participants, the studies varied considerably with a general age range from 3-19 years old, with 12 studies focusing directly on adolescents. The average number of participants across studies was 199 youth, with a range of 11 to 1369 participants.

In terms of content of the articles, the research on psychological flexibility for children and adolescents has focused on several different areas, including how the construct of psychological flexibility relates to various domains of functioning, such as mental health concerns, health issues, quality of life (QoL), and social functioning. The scope of the research has also been fairly diverse, including general research on psychological flexibility as well as treatment studies (that primarily used Acceptance and Commitment Therapy; ACT) to address childhood mental health concerns. Moreover, two of the studies focused directly on the construct and measurement tools related to psychological flexibility and one experimental study investigated the components of ACT.

Dimensionality of Psychological Flexibility Among Children and Adolescents

The construct of psychological flexibility has been extensively studied among adult populations, with the first and second edition of Acceptance and Action Questionnaire (AAQ-I & AAQ-II) as the most commonly used measures (Bond et al., 2011; Hayes et al., 2004). This research includes studying variations of the AAQ measure in terms of different languages (Pinto-

Gouveia, Gregorio, Dinis, & Xavier, 2012) as well as slightly modified versions for specific clinical concerns, such as chronic pain (McCracken, Vowles, & Eccleston, 2004) and weight loss (Lillis & Hayes, 2008). The majority of this research has shown that psychological flexibility, as measured on the AAQ, is a single-factor construct (Bond et al., 2011). However, some initial studies, especially using the first version of the AAQ, found multiple factors for psychological flexibility, which were later determined to be the result of poorly worded items on the measure (Bond et al., 2011). The finding that psychological flexibility is a single-factor construct is surprising as the definition of psychological flexibility indicates that it may consist of multiple components. However, researchers have hypothesized that the single factor may be due to fact that while acceptance of aversive internal experience and action towards one's goals are two different activities, the acceptance component is a necessary part of the second component of behavior change, making the two components very much dependent on each other (Bond et al., 2011).

Despite the large body of literature on the dimensionality of psychological flexibility of adults, very few studies have focused on the dimensionality of psychological flexibility among children and adolescents. The current review found three of the 20 studies focused on dimensionality of psychological flexibility among children and adolescents. One study developed a tool to measure psychological flexibility among youth and the other two focused on measuring psychological flexibility of parents in the context of parent-child interactions (Cheron, Ehrenreich & Pincus, 2009; Greco, Lambert, & Baer, 2008; McCracken & Guantlett-Gilbert, 2011). Specifically, Greco and colleagues (2008) conducted a large-scale study ($n = 1369$) to examine the construct validity of psychological flexibility and validate a measure of psychological flexibility for children called "Avoidance and Fusion Questionnaire for Youth"

(AFQ-Y; Greco, Lambert & Baer 2008). Using both factor analysis and Rasch modeling, they found a unidimensional structure with the one factor solution as the best fit for the data. These results are congruent with the adult literature in which numerous studies documented the single factor underlying the construct of psychological flexibility. However, the AFQ-Y is a limited measure for determining dimensionality compared to other measures of psychological flexibility as AFQ-Y only measures sub-components of psychological flexibility that are useful for informing interventions. More comprehensive measures may yield different results.

The other two studies focusing on dimensionality by Cheron and colleagues (2009) and McCracken and Guantlett-Gilbert (2011) looked at measures of psychological flexibility of parents that capture both the parents' ability to respond flexibly in the face of distress and specifically how they respond to their children. As a result, these studies found two-factor solutions rather than the single-factor structure from previous studies on psychological flexibility among adults. The authors hypothesized, however, that the two factors are a consequence of the interaction that is being captured between the parent and the child, with one factor focusing on parents' emotional regulation and the other focusing on their ability to take action. For example, Cheron and colleagues found that parents' unwillingness to face difficult emotions was related, but not the same, as their inability to take action towards changing parenting habits.

Overall, the research on the dimensionality of psychological flexibility for children and adolescents is very limited and requires further inquiry. The study by Greco and colleagues (2008) was promising in showing the single factor structure for the construct but was limited to an assessment tool that only measures subcomponents of psychological flexibility. Future research should look to use broader and more widely used measures such as "Acceptance and Action Questionnaire-II", which has been widely studied for dimensionality among adult

populations but not with children (Bond et al., 2011).

Psychological Flexibility and Childhood Mental Health

A significant portion of psychological flexibility research among children and adolescents has focused on its relationship to broad mental health concerns, such as depression, anxiety and emotional problems. Furthermore, the results of these studies have generally supported psychological flexibility as a unique and useful construct, with intervention research based on the construct having moderate to large effects.

Depression. Two pilot studies on childhood depression were identified based on psychological flexibility, including a small study ($n = 38$) conducted by Hayes, Boyd and Sewell (2011). This study compared ACT with treatment as usual (TAU), which consisted of standard cognitive behavioral therapies (CBT), on measures of depression and global functioning (behavioral functioning, prosociality and peer interactions). For the ACT intervention, therapists were provided with 2.5 hours of training and were required to read ACT manuals specifically designed for adolescents. However, the components of ACT used were applied based on clinical needs of individuals. For the TAU group, therapists used manualized treatments that involved components such as psychoeducation, recognizing triggers, coping with unpleasant thoughts and increasing pleasant activities. The findings from this study indicated that ACT resulted in significantly greater reduction in depression symptoms compared to TAU, but similar levels of improvement in global functioning were found for both ACT and TAU. Moreover, they found that the positive benefits in terms of reduction in depression symptoms for the ACT group increased slightly in magnitude at 3-month follow up.

Another treatment study by Livheim and colleagues (2014) compared ACT implemented with adolescents referred in schools for psychosocial problems such as depression, anxiety, and

stress to TAU, such as school counseling. This study included 98 participants across two different sites, with an age range of 12 to 18 years old. The ACT intervention was based on a specific manualized ACT adolescent group, which lasted for 8 weeks. This intervention used group experiential activities, such as sharing the experience of fear to increase the level of psychological flexibility for the adolescents. For the TAU, standard school-based counseling was provided, which included regular check-ins for the 8-week period. Overall, the authors found the ACT significantly reduced symptoms of depression, anxiety and stress with a medium to large effect size. Additionally, improvements in the ACT group were significantly greater compared to the TAU group across all three outcome variables. In addition to outcome variables, the researchers also looked at measures of psychological flexibility to assess the process of change that mediated changes in depression, anxiety and stress. The results from the process variable analysis were further broken down across the two sites, for which the larger site ($n = 66$) indicated that decrease in psychological inflexibility mediated the reduction in primary outcomes. The effects were not significant at the smaller site ($n = 32$), which may have been due to the smaller sample size (Livheim et al.).

Overall, these two pilot studies that primarily targeted depression among adolescents using ACT show promising results for the application of the PFM to treatment for adolescents. However, due to the small sample sizes in these pilot studies, only limited inferences can be drawn regarding the efficacy of the PFM and larger clinical trials are needed to make stronger conclusions.

Anxiety. Several studies have focused on the relationship between anxiety and psychological flexibility among children and adolescents. Greco and colleagues (2008) examined the construct validity of psychological flexibility among children and adolescents by looking at

how psychological flexibility relates to anxiety, somatic complaints and behavior problems as well as quality of life (QoL). As expected from psychological flexibility theory, they found that anxiety, somatic symptoms and behavior problems all positively correlated with high levels of psychological inflexibility, with effect sizes ranging from medium to large (based on Cohen's *d* criteria of small effect size = .10, medium = .30 and large = .50; Cohen, 1992) and negatively correlated with positive measures, such as QoL (Greco et al.). Venta, Sharp and Hart (2012) conducted a similar study, using a sample of inpatient adolescents ($n = 111$) to investigate the relationship between psychological flexibility and anxiety. Overall, they found a strong relationship between psychological inflexibility and levels of anxiety while controlling for comorbid symptoms of depression. Specifically, they found that individuals who scored high on psychological inflexibility had higher levels of anxiety, and psychological inflexibility was a good predictor for general anxiety disorders. Moreover, even though their study focused primarily on anxiety, they also found positive relationships, but slightly less predictive in terms of variance explained, between high levels of psychological inflexibility and depression, ADHD, and affective problems (Venta et al.).

Other studies have focused on the interrelationship between psychological flexibility and anxiety within the context of chronic health problems. For example, Feinstein and colleagues (2011) found that among 23 adolescents with juvenile idiopathic arthritis, high psychological inflexibility uniquely predicted higher levels of anxiety, whereas low psychological inflexibility and acceptance of pain predicted lower anxiety and high quality of life. Another study conducted by Guantlett-Gilbert and colleagues (2013) examined treatment effects for 98 adolescents in a residential setting for pediatric chronic pain who had high levels of anxiety due to their pain. The adolescents participated in a 3-week ACT intervention, which was successful in reducing

primary treatment targets of anxiety symptoms as well as secondary targets, such as increase in school attendance and less frequent use of health care facilities. Furthermore, when examining the process of change, they found that the positive outcomes were associated with acceptance, in contrast to avoidance, of pain related symptoms, providing corroborating evidence for psychological flexibility as a mediating variable. However, this study is limited by the lack of a control or comparison group, which makes it difficult to rule out alternative factors that may have caused the change besides ACT treatment, such as positive attention from staff or maturation over time.

Emotional problems. Several studies have looked more broadly at general emotional problems and how they relate to psychological flexibility. For example, one study investigated how psychological flexibility mediates the relationship between alexithymia, the inability to describe emotions with words, and emotional regulation, the process of monitoring, evaluating and modifying emotional reactions to accomplish one's goal (Venta, Hart, & Sharp, 2013). Specifically, the researchers hypothesized that addressing alexithymia by teaching how to verbalize emotions alone is not sufficient to regulate emotions effectively but the additional component of psychological flexibility, the ability to be express and accept emotions, is the process by which reduction in alexithymia leads to better emotion regulation. Using a sample of 64 adolescents recruited from an inpatient facility, Venta and colleagues found that psychological flexibility was associated with both alexithymia and emotional regulation and also served as a mediator between them. In other words, they found that emotional regulation strategies were helpful only when individuals could effectively describe their own emotional states and also had the ability to tolerate aversive private experience that came up when describing those emotional states (Venta et al.). In contrast, McCracken and Guantlett-Gilbert

(2011) looked at the interrelationship between psychological flexibility of adolescents with chronic pain and their parents, as well as the adolescents' social-emotional functioning based on pain symptoms. A total of 193 adolescents and their parents were recruited from a specialty pain clinic to participate in this study. For the adolescents, psychological flexibility was positively correlated with greater acceptance of pain and consequently, negatively correlated with pain-related dysfunction in social and emotional functioning. Moreover, for the parents, psychological inflexibility was negatively correlated with protective and encouraging parental responses to their children's pain symptoms.

A more recent study by Schramm, Venta and Sharp (2013) examined emotional regulation among an inpatient psychiatric population for adolescents ($n = 208$) with borderline personality disorder (BPD) and what unique variance psychological flexibility adds above and beyond emotional regulation. The study found that psychological flexibility uniquely predicted borderline personality features beyond emotional regulation, indicating a small but significant level of incremental validity for psychological flexibility. More importantly, the study found that psychological flexibility mediated the relationship between emotional regulation and borderline personality features in adolescents, supporting the role of psychological flexibility as a mechanism of change.

Finally, an experimental study by Luciano and colleagues (2011) investigated emotional regulation as well as impulsivity on cognitive processes from a basic research perspective. This study included 15 adolescents who had high scores on emotional and impulsivity subscales of Behavior Assessment System for Children Second Edition (BASC-2) rating scale. The adolescents were introduced to two separate protocols, each focusing on distinct cognitive process of either meta-awareness (I am having an aversive thought) or categorizing events into

hierarchies (I am more than my thoughts). Both of these processes have been hypothesized to affect the individual's ability to defuse from aversive thoughts and consequently promoting psychological flexibility. The results of this study found that only the ability to categorize events into hierarchies was more effective at helping the individual defuse from their thoughts, and led to greater reduction in problematic behavior and acceptance of aversive private events (Luciano et al.). In summary, this study demonstrated the effectiveness of defusion strategies to increase psychological flexibility, which were linked to subsequent behavior change. Moreover, this study also provided direct support for the underlying changes in cognitive processes that are linked to psychological flexibility.

Overall, the research on children's psychological flexibility and its relationship to mental health is promising, with results indicating that psychological flexibility is a unique construct useful in treatment largely based on ACT, supported by at least one basic research study in cognitive processes underlying psychological flexibility. Moreover, these results are fairly consistent across mental health concerns such as depression; anxiety and emotional problems; health concerns, such as chronic health; and school difficulties.

Stress and self-injury. In addition to the studies focused on mental health issues (i.e., depression), some researchers have considered psychological flexibility in relation to other specific conditions, such childhood stress disorders and self-injury. In terms of childhood stress disorders, intervention studies targeting psychological flexibility through ACT have shown promise (e.g., Livheim, Hayes, Ghaderi, Magnusdottir & Hogfeldt, 2014). As mentioned earlier (see depression), Livheim and colleagues compared school counseling (TAU) with an 8-week manualized ACT treatment specifically for adolescents in school settings to target stress and anxiety. The results from this study indicated that ACT had significantly greater reduction in

both stress and anxiety, with a large effect size (Cohen's *d* criteria) for both outcome variables (Livheim et al.).

Other stress studies have focused on post-traumatic stress disorders (PTSD) among adolescents, in which researchers have looked at the relationship between exposure to traumatic events and development of PTSD. For example, Polusney and colleagues (2011) examined a large sample of 288 adolescents and parents who had experienced trauma due to tornadoes. They found that psychological flexibility mediated the relationship between exposure and the manifestation of PTSD for adolescents and parents. Furthermore, parents' post-disaster functioning was predictive of adolescents' levels of psychological flexibility, with lower parent functioning indicating lower levels of psychological flexibility among adolescents (Polusney et al.). As such, this study highlighted not only the relationship between PTSD and psychological flexibility but also the impact family members can have on the psychological flexibility of their children.

Another study by Shenk, Putnam and Noll (2012) further investigated childhood stress by comparing psychological inflexibility with other proposed mechanisms for adolescent PTSD due to maltreatment. This study was exclusive to adolescent females who were recruited from child protective service agency and had a range of different forms of maltreatment, including sexual abuse (49%), physical abuse (45%), physical neglect (16%) and multiple forms of abuse (10%). Although not described in the article, it appears that some participants experienced more than one form of maltreatment. Overall, they found that although other proposed mechanisms of developing PTSD, such as respiratory sinus arrhythmia (RSA) and cortisol reactivity were both found to mediate the relationship between child maltreatment and PTSD when analyzed independently, only psychological inflexibility significantly mediated the relationship when all

three mechanisms were combined into one model (Shenk et al.). Moreover, psychological inflexibility predicted all three clusters of PTSD symptoms and had a stronger overall effect compared to RSA and cortisol reactivity.

Finally, one study was found that examined self-injury and psychological flexibility. Howe-Martin, Murrell and Guarnaccia (2012) investigated the role of psychological inflexibility with a sample of 211 adolescents with and without non-repetitive/repetitive non-suicidal self-injury (NSSI/RNSSI) and functionally equivalent behavior (substance abuse, eating disturbance, and suicidal ideation). The researchers examined three different conditions that lead to psychological inflexibility or forms of avoiding private experience, including thought suppression, alexithymia, and cognitive fusion. The results for female participants indicated that both thought suppression and alexithymia were strongly and positively correlated with high frequency of NSSI, with thought suppression having the most consistent and largest effect ranging from $d = .41$ to $d = .71$ (Howe-Martin et al.). Surprisingly, cognitive fusion was not strongly related to NSSI and did not differentiate between typical students and students with a history of NSSI. Additionally, male students in the study did not have the same pattern of results, with a lesser degree of psychological inflexibility overall, and only thought suppression strategy showed a significant effect. For functionally equivalent behaviors to NSSI/RNSSI, which were predicted to have the same relationship with psychological inflexibility as the NSSI/RNSSI, the results confirmed this prediction with a significant relationship between these variables with an overall moderate to large effect size (Howe-Martin et al.).

Psychological Flexibility and Medical Concerns

Researchers have also started to examine the relationship between health concerns (e.g., chronic pain) among adolescents and psychological flexibility. This research includes application

of treatments such as ACT to health concerns and general research on the link between pain symptoms and psychological flexibility. In terms of intervention, the study reviewed earlier (see anxiety) by Gauntlett-Gilbert and colleagues, (2013) used ACT to target anxiety and chronic pain symptoms. ACT was effective in improving self-reported levels of physical functioning, such as engaging in everyday tasks, and physical performance measures, such as time walked.

Additional benefits from ACT treatment, such as lower levels of anxiety, higher school attendance and less frequent use of health care facilities were also found. However, this study was limited due to the lack of a control group and no attempt to examine if psychological flexibility mediated the change in outcomes, including pain symptoms.

In contrast, Wicksell, Melin, Lekander and Olsson (2009) and Wicksell, Olsson, and Hayes (2011) conducted randomized controlled trials comparing ACT to multidisciplinary treatment (MDT) of chronic pain, examining general outcomes as well as process of change. In terms of general outcomes, they found ACT was significantly better than MDT at reducing pain interference (how much pain interferes with day to day activities) and depression as well as increasing quality of life. These results were maintained at 3.5 month and 6.5 month follow-up. Furthermore, the mediating role of psychological flexibility for ACT intervention was also investigated, showing that greater levels of psychological flexibility through acceptance of pain mediated positive outcomes of reducing pain interference and depression (Wicksell et al.).

In the non-treatment related literature, two studies directly explored the relationship between psychological flexibility and chronic pain. The first study (previously described) by McCracken and Gauntlett-Gilbert (2011) looked at the psychological flexibility of both children with chronic pain and their parents. Their results indicated that children rated to have higher levels of acceptance of their pain, indicating greater psychological flexibility, also had better

social and emotional functioning. For parents, higher levels of psychological flexibility indicated greater levels of caring and encouraging parental responses in the context of attending their children's medical needs. Similarly, Feinstein and colleagues (2011) also investigated the role of psychological flexibility and managing pain with juvenile idiopathic arthritis. Their results also indicated that high psychological flexibility was associated with less anxiety, greater acceptance of pain, and higher general and health related quality of life.

In summary, psychological flexibility has strong preliminary support for informing psychological treatment for chronic health conditions, such as pediatric pain disorders. This was demonstrated across studies that utilized interventions explicitly targeting psychological flexibility for treatment change and in general studies that examined the relationship between psychological flexibility and emotional coping with pain.

Quality of Life

In contrast to the research on mental health problems, very few studies have looked at positive aspects of mental health such as quality of life (QoL) and how they relate to psychological flexibility among children and adolescents. Three studies were found that included QoL as an outcome, all indicating that greater psychological flexibility leads to better QoL. For example, Greco and colleagues (2008) found that psychological inflexibility among youth was significantly and negatively correlated with QoL (medium to large effect sizes) as well as positively correlated with anxiety and problem behaviors (study details described earlier). Similarly, as reviewed earlier, Wicksell, Melin, Lekander and Olsson (2009), as part of a randomized control trial comparing ACT and MDT, found that ACT resulted in significantly greater increase in QoL compared to MDT both after treatment and up to 6.5 month follow up.

Another study looking at QoL by Feinstein and colleagues (2011), described earlier,

explored the role of psychological flexibility and functional disability, anxiety, QoL and health related quality of life (HQoL). They found that higher psychological flexibility led to lower levels of anxiety and higher level of both QoL and HQoL. In addition, they found that acceptance of uncomfortable physical and emotional experiences were uniquely related to the increase in overall QoL (Feinstein et al.). In summary, the research on the relationship between psychological flexibility and QoL is limited for children compared to the adult literature, but the initial results from the three studies reviewed here suggest there is a relationship.

Psychological Flexibility Across Settings and Social Context

In addition to child-specific variables (e.g., disorders), researchers have also examined ecological variables in relation to psychological flexibility, such as academic and school functioning and parent child interactions within the context of family. Some of the studies focused on a broader set of outcome variables, such as school attendance, whereas others focused on bidirectional interactions between parent and child and how they affect psychological flexibility.

Academic and school functioning. Very few studies on the relationship between psychological flexibility and academic or school variables have been conducted to date. Only two studies were found, one of which focused on school attendance as a secondary measure and the other on teachers reports of student's behavioral, academic and social competence. Gauntlett-Gilbert and colleagues (2013) were primarily interested in testing the efficacy of ACT for children with chronic pain (described above), but school attendance was included as a secondary outcome measure. They found that students attended school more regularly after going through the ACT treatment, indicating positive effects of increasing psychological flexibility on school functioning. However, these results were found among children with chronic illness and should

be interpreted with caution when generalizing to other populations. The other study, conducted by Greco and colleagues (2008), was primarily focused on validating a new measure of psychological flexibility. However, as part of the convergent validity tests, the study included teacher reports on students' behavioral, academic, and social competence. The results indicated a small but significant relationship between students' self-report of psychological flexibility and teacher ratings across all three domains, with higher levels of psychological flexibility negatively correlated with more behavior problems and positively correlated with academic and social competence. However, due to the small effect size (Cohen's d), the authors cautioned against making strong inferences based on the findings.

Family context. Six studies were identified that examined the role and interaction of parent level of psychological flexibility and psychological flexibility or general functioning of their children. However, only one of the six studies (Williams, Ciarochi, & Heaven, 2012) directly looked at the interactions between psychologically inflexible parents and the likelihood that the child would also be psychologically inflexible. This study was a six-year longitudinal study, starting from 7th grade and ending in 12th grade with a sample size of 749 students. Williams et al. found that negative parenting styles, such as authoritarian parenting (low warmth, high control) as measured on Parental Authority Questionnaire (PAQ), were associated with low levels of psychological flexibility (measured by AFQ-Y) for both the parent and child. Moreover, they found that change towards less authoritative parenting (high warmth, high control) led to increase in the psychological flexibility of the child, indicating that psychological flexibility is a malleable trait during adolescence.

Other studies on parent psychological flexibility have focused on the relationship between psychological flexibility, mental health of parents, and parenting behavior. For example,

Coyne and Thompson (2011) and Shea and Coyne (2011) both considered how maternal depression and stress is related to psychological flexibility. Coyne and Thompson recruited 74 mothers from low-income backgrounds and who had children participating in the local Head Start preschool program. They asked the participants to rate their own level of depression, locus of control and experiential avoidance as well as their children's level of internalizing behaviors. Overall, they found that maternal depression was linked with lower levels of psychological flexibility, both of which were mediated by maternal perception of locus of control. Additionally, maternal depression and psychological inflexibility both predicted higher levels of reported internalizing behaviors for the child.

Shea and Coyne (2011) also recruited mothers ($n = 140$) of children attending a local Head Start program to examine the relationship between parents self-reported functioning (symptoms of dysphoria, parent stress and level of psychological flexibility), parenting behavior and child behaviors. The results of this study indicated that low levels of maternal psychological flexibility were associated with increases in parenting stress, higher reports of dysphoria, greater maladaptive parenting behaviors and higher levels of children's behavior problems. The researchers further hypothesized that low levels of psychological flexibility were significantly related to negative outcomes due to attempts by parents to engage in avoidance behaviors when faced with difficult private experiences.

Additional studies related to psychological flexibility of parents have focused on topics such as developing a specific measure of psychological flexibility targeting parenting concerns and looking at how ACT-like interventions can assist parents of children with chronic or terminal health conditions (Burke et al, 2014; Cheron, Ehrenreich & Pincus, 2009; McCracken & Gauntlett-Gilbert, 2011). In terms of chronic pain, McCracken and Gauntlett-Gilbert examined

parent levels of psychological flexibility and helpful parenting behavior towards taking care of their child with chronic pain. They found that parents with high psychological flexibility were more comforting and the adolescents themselves were more accepting of their pain. In contrast, Burke and colleagues (2014) applied a combination of ACT and problem solving skills training (PSST) to 11 parents of children who had life threatening health conditions. They found that the ACT significantly improved parents' posttraumatic stress, feelings of sorrow and grief, and psychological flexibility from pre- to post-test and the results were maintained at a 6-month follow up period. However, no control group was employed in this study and as such, the results should be viewed with caution regarding the efficacy of ACT for reducing posttraumatic stress and other related symptoms.

Overall, studies on the effect of parents' psychological flexibility and its impact on their child indicate that higher levels of parental psychological flexibility may improve psychological flexibility among children. However, because only one study directly demonstrated this relationship, the results should be interpreted with caution. Additionally, research also indicates that higher psychological flexibility is positively correlated with better parental mental health and consequently, more positive parenting behaviors and improved outcomes for children.

Summary and Limitations

Overall, the literature on psychological flexibility with children and adolescents indicates that psychological flexibility is a promising construct and may serve as a mechanism of change, similar to the better-established results from the adult literature on psychological flexibility. However, there are some limitations in the psychological flexibility literature for youth, especially within the context of childhood mental health. One limitation is the lack of exploration of the factor structure of psychological flexibility among adolescent samples. There are several

studies that have been conducted to establish the unidimensional nature of psychological flexibility among the adult population but currently, only one study was found that examined the factor structure of a measure of psychological flexibility among children and adolescents (Bond et al., 2011). Still, the results from this single study are encouraging as the researchers found that a single factor was the best fit for the data, even among an adolescent sample (Greco et al., 2008).

Another limitation of the psychological flexibility literature for childhood mental health is the lack of analysis examining the relationship between psychological flexibility and demographic variables, including gender, ethnicity, income and other relevant characteristics. Moreover, variables such as whether or not a child has a special education label have not been examined at the current time, which is surprising considering the high likelihood of children with mental health needs receiving special education services in school settings. Demographic characteristics may serve as moderating variables for psychological flexibility that can further inform and improve treatment and service delivery by explicating what variables are relevant to the development and current levels of psychological flexibility for different subgroups of children and adolescents.

One area of research for childhood mental health and psychological flexibility that has been fairly extensively covered is the relationship between psychological flexibility and various mental health concerns. The literature highlighted in this review indicates that a wide range of disorders has been studied, such as depression, anxiety, PTSD and self-injury (Livheim et al., 2014; Polusney et al., 2011; Venta et al., 2012). Moreover, the research has also looked at mental health concerns associated with health conditions, such as chronic pain, and a few studies have even looked at positive mental health factors such as QoL (Feinstein et al., 2011; Wicksell et al.,

2009). Despite this growing body of literature, however, the research in this area is still limited compared to the larger body of supporting research on adult mental health and psychological flexibility.

The literature reviewed here also is limited in terms the range of outcomes that are relevant to childhood mental health, such as those that are strengths-based and include positive variables (i.e., QoL) and school/academic functioning. Only one study looked at school functioning in terms of attendance, which was positively associated with higher levels of psychological flexibility (Guantlett-Gilbert et al., 2013). Similarly, only one study investigated the relationship between parents' and child's level of psychological flexibility, providing some preliminary evidence that parents' level of psychological flexibility has an impact on the flexibility of their children (Williams et al, 2012).

Overall, the literature reviewed here also covered a wide range of ages from 3 to 19 years old, focusing both on children and adolescent research. The research with younger children was largely done through parent-focused studies, where parents' level of psychological flexibility was the focus as cognitive limitations of younger children made it difficult to report and assess their psychological flexibility. Moreover, the psychological flexibility model and corresponding interventions like ACT, which were developed for adults, have not been translated into developmentally appropriate versions for young children; however, for adolescents the transition may not be as large. For adolescent research on psychological flexibility, the current literature review identified 12 studies that focused directly on adolescent mental health concerns, with mostly positive results in favor of the psychological flexibility model. However, one major limitation of these studies was that they focused exclusively on internalizing problems, such as anxiety, with no research investigating externalizing concerns that are more typical of students

with SEB. This is a large gap in the literature as adolescents with SEB are the highest risk of negative academic and social outcomes even compared to other disability groups and as such, in need of high quality research to address their needs (Davis, Young, Hardman, & Winters, 2011). Due to this gap in the current literature and promising initial results of the psychological flexibility model in treatment for adolescents, further research is needed to directly test the relationship of psychological among adolescents with SEB as well as the effectiveness of treatments such as ACT.

Despite these limitations, the research on psychological flexibility and childhood mental health concerns is promising and should be further investigated. Consequently, the current study looks to address some of the key limitations highlighted above by looking specifically at students with SEB enrolled in high school, exploring the factor structure of psychological flexibility among adolescents, examining how psychological flexibility relates to demographic variables, and a wide range of outcomes, including psychopathology, quality of life, academic achievement, and student engagement.

Chapter 3: Methods

Participants and Settings

Participating students. The current study included high school students from Pennsylvania who participated in a larger multi-site efficacy study known as the Center for Adolescent Research in Schools (CARS; see procedures for details). The Pennsylvania site was selected, as it was the only site that already had prior IRB approval to include the additional measure. Participants included students attending the 10 high schools in Pennsylvania who were still enrolled in the project at the end of year one of the efficacy trial. In total, 73 students participated. The age range of the sample was 13 to 17 years old, with an average age of 15.6 years old. In terms of gender, the breakdown was similar to the overall CARS study sample, with 71% male ($n = 49$) and 29% female ($n = 20$). Ethnicity was categorized as white (70%; $n = 46$) or non-white (30%; $n = 20$) participants due to small number of specific non-white ethnicities endorsed in this sample. The Pennsylvania subsample was also distributed fairly evenly across rural (23%; $n = 16$), suburban (51%; $n = 35$) and urban communities (26%; $n = 18$). In addition, the percentage of students who had a special education labels was slightly more than 50% (54%; $n = 37$) compared to students without a special education label (46%; $n = 32$). Among the students with special education labels, the majority of students had a learning disability label (58%; $n = 22$), followed by emotional disturbance (26%; $n = 10$), other health impairment and other diagnosis (8%; $n = 3$ for both). Finally, as mentioned earlier, this sample was drawn from a larger efficacy trial, which included a treatment and control group. For this subsample, slightly more students were part of the treatment group (54%; $n = 39$) in the efficacy trial compared to the control group (46%; $n = 33$).

Recruitment. For the CARS study, school sites were selected based on proximity to universities in each state as well as a willingness of the schools to engage in the project. School liaisons, such as school counselors, administrators, or special education teachers were recruited to help identify a list of 25 students who (a) would be attending 9th through 11th grade during Year 1 of the efficacy trial (i.e., 2011-2012 academic year) and (b) exhibited significant social, emotional, and/or behavioral problems. Student selection was open to both general education and special education students. A staff member at each school served as a liaison whose primary role was to contact parents of potential participants to obtain permission for CARS staff to contact them to explain the project. Once permission was obtained, CARS staff met with each interested parent(s) and the student to secure parental consent and student assent for screening and potential participation. Initially a total of 857 families/students agreed to screening across all five sites, of which 647 ($n = 123$ in the Pennsylvania site) eventually met eligibility criteria and agreed to participation at the beginning of year 1.

Specific student criteria for eligibility in the CARS study included demonstrating significant impairment in social, emotional, or behavioral functioning as well as impairment in school functioning. Standardized assessments were used to assess social/emotional/behavioral functioning, which were completed by the student's legal guardian(s), school staff member(s) familiar with the student and the student him/herself. Criteria for impairment in social/emotional/behavioral functioning was a t -score of 60 or higher on either the internalizing or externalizing composites (score of 60 and above indicates "at risk" category) of the Behavior Assessment System for Children-Teacher or Parent Version (BASC-2; Reynolds & Kamphaus, 2004), a t -score of 60 or higher on the Multidimensional Anxiety Scale for Children (MASC-2; March, 2012), or a t -score of 50 or higher on the Reynolds Adolescent Depression Scale 2

(RADS-2; Reynolds, 2002). Cut off scores for both MASC-2 & RADS-2 were based on the criteria of one standard deviation above the mean scores on each assessment.

Once students met eligibility on the standardized assessments, they were then evaluated to determine whether they met the criteria of impairment in terms of school functioning. Criteria for school functioning impairment could be met by exhibiting any two of the following: (a) four or more office referrals or behavioral referrals across the semester prior to enrollment or five or more in any month of the current semester, (b) five or more absences (non-illness related) or tardiness during any month of the current or previous semester, (c) two or more in- or out-of-school suspensions in the current academic year, or (d) one or more F's or two or more D's in any core academic subject in one of two most recent grading periods.

Students were excluded if they were diagnosed with either Autism Spectrum Disorder or Pervasive Developmental Disorder or if they had an IQ below 75. The IQ exclusion criterion was used in order to effectively test the interventions used in this study (e.g., cognitive behavior therapy), which required greater cognitive abilities. Scores for IQ were obtained based on school testing conducted within three years prior to screening that used the Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999), Wechsler Intelligence Scale for Children –Third and Fourth Edition (WISC-III, Wechsler, 1991; WISC-IV; Wechsler, 2003), or Wechsler Adult Intelligence Scale (WAIS-IV; Wechsler, 2008). If a student did not have an IQ test had not been conducted in the past 3 years, the WASI was administered by CARS staff. A final exclusion criterion was non-English speaking parent(s) or guardian(s). At least one English speaking parent/guardian was needed in order to provide information for the study and complete assessments.

Measures

Demographic information. Demographic variables including age, ethnicity, gender, geographic region and family information were obtained through a custom demographic form created for the CARS project. This form was filled out by a parent/guardian of each participant at the beginning of the CARS efficacy trial and provided a combination of forced choice items as well as open-ended questions, assessing broad demographic variables.

Psychological flexibility. Psychological flexibility was measured using *Acceptance and Action Questionnaire-II* (AAQ-II). The AAQ-II (Bond et al., 2011) is a 7-item measure of psychological flexibility, with a 7-point scale ranging from never true (1) to always true (7), with higher scores indicate lower levels of psychological flexibility. The content of the items included participants' willingness to be in contact with negative private events, the acceptance of these events, and how effectively they can pursue their goals in life. Summation of the scores resulted in a total score ranging from 7 to 49, whereby a higher score indicates lower psychological flexibility. Research on psychometric properties of the AAQ-II indicates strong reliability with an alpha coefficient of .84 (range of .78-.88 across three sub-samples) and strong test-retest reliability with a range of 3 to 12 months (.81 and .79 respectively; Bond et al., 2011). Additionally, psychometric studies for the measure have involved college students, making the AAQ-II relevant for emerging adults (adolescents). However, this study will revisit the psychometric properties of the AAQ-II for the adolescent population.

Mental health. *Behavior Assessment System for Children, Second Edition* (BASC-2; Reynolds & Kamphaus, 2004) is a norm-referenced behavior rating scale that measures a range of behavioral and mental health domains such as Hyperactivity, Aggression, Depression, Attention Problems, Atypicality, and Withdrawal. Although the rating scale was administered to parents, teachers and students, for this study, only the parent version of the scale will be used as

it had the broad composite measures necessary for this study (see below) and has been shown to be a more accurate report of behavior for SEB students (Achenbach 2006; Miller, Martinez, Shumka & Baker, 2014). The parent BASC-2, includes a total of 150 items evaluating child behavior. Behaviors are rated on a 4-point scale including *never* (1), *sometimes* (2), *often* (3), and *almost always* (4). The composite scores are reported as *T*-scores with a mean of 50 and standard deviation of 10. Psychometric properties of the parent BASC-2 adolescent form have been well studied, with strong internal consistency ranging from .80 to .90, test-retest reliability of .82 across age ranges, long-term stability of .69 and convergent validity at $r = .81$ (Reynolds & Kamphaus, 2004).

The composite score of Behavioral Symptoms Index (BSI) will be utilized in the present analyses as it includes a wide array of functioning across both internalizing and externalizing behaviors, providing an index of overall problem behaviors. Higher scores on the BSI indicate higher levels of behavior problems. Internal consistency for BSI ranges from .88-.97 across the child and adolescent versions on the BASC-2 (Reynolds & Kamphaus, 2004). Validity data for BSI were also found strong positive correlations with similar measures of overall behavioral problems such as Achenbach System of Empirically Based Assessment Child Behavior Checklist (ASEBA: CBCL; $r = 0.73$ to 0.84 across age ranges). Additionally, BSI was negatively correlated on CBCL's competence subscales such as activities, social, and school related competence ($r = -0.17$ to -0.55 across age ranges; Reynolds & Kamphaus, 2004).

Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS; Huebner & Gilman, 2002) was used to measure positive aspects of mental health. The BMSLSS is a widely used brief version of the Multidimensional Students' Life Satisfaction Scale (MSLSS), both of which include six main content areas of family life, friendships, school experience, satisfaction with

self, living environment and overall satisfaction with life. Each content area is assessed by only one item, which is rated on a 7-point Likert scale that ranges from *terrible* to *mostly satisfied*, *pleased and delighted*. The BMSLSS has research support with a diverse sample of different ages, geographic locations and cultural backgrounds, including adolescent populations (Bussing et al., 2009; Zullig et al., 2008; Zullig et al., 2009). In addition, factor analytic studies indicate that life satisfaction as measured on the BMSLSS is single factor structure, with factor loadings ranging from .46 to .77 (Seligson, Huebner & Valois, 2005). In terms of reliability, the alpha coefficient for BMSLSS ranged from .65 to .87 and test-retest reliability (across two weeks) ranged from .82 to .91, both indicating that BMSLSS is a highly reliable measure (Funk III et al., 2006; Siyez & Kaya, 2008). The validity of BMSLSS has also been established with research indicating that BMSLSS scores are positively correlated ($r = 0.39$) with similar measures such as the Student Life Satisfaction Scale (SLSS) and negatively correlated ($r = -0.36$) with psychopathology measures such as Positive and Negative Affect Schedule-Children (PANAS-C; Seligson, Huebner & Valois, 2005). For the current study, the overall BMSLSS life satisfaction rating will be used.

School Functioning. *Student Engagement Instrument (SEI*; Appleton, Christenson, Kim, & Reschly, 2006) –Adapted is a 38-item scale instrument that assesses the level of student engagement in school. The SEI measures cognitive and affective engagement, broken into six subscales that include control and relevance of school work, future aspirations and goals, extrinsic motivation, teacher-student relationships, peer support for learning, and family support for learning. Items are rated on a 4-Likert scale, where 1 = “*strongly agree*”, 2 = “*agree*”, 3 = “*disagree*”, and 4 = “*strongly disagree*”, except for items 12, 18, 19, and 35 which are reverse coded. Total scores are calculated by adding student responses, for which higher scores indicate

higher levels of engagement. For the adapted SEI, the following additional three items were included: "Sometimes I skip the entire day of school" (Item 12), "I believe I will graduate from high school" (Item 22), and "I often think about dropping out of school" (Item 35). Several studies established the psychometric properties of SEI for use with high school students confirm the hypothesized six-factor structure (Appleton et al.; Betts, Appleton, Reschly, Christenson, & Huebner, 2010). The six subscales were found to be highly reliable with alpha coefficients ranging from $r = 0.72$ to 0.88 and validity data indicates that high scores (indicating greater engagement) on each subscale are significantly correlated with better academic outcomes (GPA, achievement scores) and lower negative outcomes such as school suspensions (Appleton et al.). For the current analysis, all six subscales of engagement will be used.

The *Woodcock Johnson Tests of Achievement, Third Edition* (WJ- III; Woodcock, McGrew, & Mather, 2001) consists of a battery of subtests designed to assess student achievement in reading, writing, and mathematics. The composite standard scores on the WJ-III have a mean of 100 and a standard deviation of 15. For the current study, the reading subtests (Letter–Word Identification, Reading Fluency, Passage Comprehension subtests) on the WJ-III were used to generate standard scores for the Broad Reading composite as indicators for academic achievement. The Broad Reading composite score from the WJ-III was used as it is designed to provide an overall index of reading skills.

The WJ-III battery is normed for children and adults and research supports its psychometric properties (Woodcock, Mather, & McGrew, 2001). The WJ-III was normed on a representative sample of 8,818 based on the 2000 U.S. Census. Overall, the WJ-III has an internal consistency reliability of .98 and an inter-rater reliability range of .93 to .99. Stability scores also indicate that the WJ-III is a highly reliable test with correlations ranging from .85 to

.96. In terms of validity, the WJ-III was found to correlate moderately with Wechsler Individual Achievement test ($r = .65$) and with Kaufman's Test of Educational Achievement, Second Edition ($r = .79$; WJ-III; Woodcock et al.)

Procedures

Participants for this study were part of a larger study conducted by the Center for Adolescent Research in Schools, which included a 2-year randomized controlled efficacy trial. Overall, the CARS study included a total of 647 students across 54 high schools in five states (Kansas, Missouri, Ohio, Pennsylvania, and South Carolina). Each of the five sites had a different number of high schools, with five in Kansas, seven in Missouri, 16 in Ohio, 10 in Pennsylvania, and 16 in South Carolina. All high schools were randomly assigned into either a treatment (52%; $n = 333$) or control group (49%; $n = 314$). The treatment group consisted of on-going training for teachers, counselors and other participating school staff members in CARS interventions for classroom behavior management, academic success, and mental health concerns. In contrast, the control group schools received monthly informational fliers regarding evidence-based practices but no direct support for training and implementing of services.

In terms of characteristics, schools were fairly evenly distributed with respect to locations (as defined by Department of Education), with 19 (39%) suburban, 21 (37%) rural, and 14 (24%) urban. In terms of sample characteristics, the participants consisted of 66% male ($n = 430$) and 34% female ($n = 217$). Approximately half of the sample (49%; $n = 301$) of students had special education labels. Among students with special education labels, the primary category was learning disability for 53% ($n = 130$) of the sample, emotional disturbance for 21% ($n = 64$) of the sample, and other health impairment for 26% ($n = 64$) of the sample. Thus, the subsample for the current study was similar to the larger sample with respect to school location,

gender distribution, and special education status. Only ethnicity differed somewhat with a smaller percentage of Caucasian students in the overall sample (52% compared to 70% in the present sample).

The data for the CARS project were collected at four distinct times points during the 2-year efficacy trial. All data in the study were collected by trained graduate assistants, either in person or by mailing the assessment packets directly to the participants. The majority of data were collected using teleforms, including demographic information, rating scales (BASC-2, BMSLSS, SEI) and the achievement test results (WJ-III). However, some forms were collected using non-teleform rating scales (AAQ-II). Once the participants filled out the forms and returned them to the CARS team, each individual site scanned in the documents to create backups of all the forms. Once backups were completed, the teleforms were sent by mail to the Texas Institute for Measurement, Evaluation, and Statistics (TIMES) at the University of Houston, where all CARS data were stored and analyzed.

For the current study, an additional assessment measure of psychological flexibility (AAQ-II) beyond the initial project was provided to the students in the Pennsylvania site as part of the assessment packet given to all students. This data collection spanned all 10 high schools that participated as part of the Pennsylvania site, including five treatment schools and five control schools based on initial randomization across all 54 high schools. The AAQ-II was administered at the second data collection point in the course of the larger efficacy trial, exactly one year after the initial data collection point, and was collected directly onto a non-teleform rating scale form. The data for the AAQ-II were not sent to University of Houston, but were stored at the Pennsylvania site.

Analysis

The analyses for this study included an exploratory factor analysis (EFA) and linear multiple regression (LMR). The EFA was used to address the first research question, which assessed the factor structure of psychological flexibility for the sample of adolescents with serious emotional behavioral problems (SEB). Specifically, a Principal Axis Factor Analysis was used instead of other methods such as Principal Component Analysis as the goal of the analysis was to assess the latent construct of psychological flexibility, not to reduce the data into components based on total variable variance. For factor extraction, multiple methods were used including the Kaiser rule (Kaiser, 1960), which is recommended for smaller sample sizes and less than 30 variables found after extraction, the scree test for a visual analysis and the amount of variance explained by the factor(s) (at least 70% as typically used in the field; Stevens, 2009) to determine how many factors were retained. For rotation methods, the direct oblimin oblique rotation method was used as the components of psychological flexibility are theorized as correlated with each other. The EFA was chosen to answer this question over a confirmatory factor analysis due to the lack of previous research examining the factor structure of psychological flexibility among adolescents and specifically adolescents with SEB. As such, the current analysis only explored how many factors emerged in the current sample.

For the subsequent three research questions, separate LMR analyses were conducted to answer each question. For the second research question, four dichotomous predictors of ethnicity (white and non-white), income (high and low income), special education status (special education students and general education students) and study condition (treatment and control) were used to determine if demographic variables significantly predicted levels of psychological flexibility or subcomponents of psychological flexibility. Additionally, an iterative analysis was conducted for research question two without the variable of “study condition” as this variable

was only included in the initial analysis to verify if treatment group was significantly different from the control group. As the initial analysis found the “study condition” to be not significant, it was removed from the iterative analysis, allowing for greater power to analyze the other remaining three-predictor variables. For analysis of the third research question, two separate analyses were conducted to see if psychological flexibility or its subcomponents significantly predicted levels of psychopathology (as measured on the BASC-2) and quality of life (as measured on BMSLSS). Similarly, for the fourth and final question, psychological flexibility or its subcomponents were again used as the predictor variable(s) in the LMR analysis to determine if it significantly predicted engagement (as measured on the SEI), involving six individual analyses for each sub-category of the SEI as the dependent variables, and a single analysis for academic achievement (based on Broad Reading Composite of the WJ-III).

For all of the LMR analyses, post-hoc power analyses were conducted with medium effect size ($f^2 = 0.15$), alpha level of .05 for a sample of 73 students using the G*3 Power software (Faul, Erdfelder, Lang, & Buchner, 2007). The post-hoc analysis was chosen for this study as the data were collected as part of the larger study in advance of formulating the specific research questions for the present study. Furthermore, the medium effect size was chosen based on previous research on PFM, indicating medium to large effect sizes for individuals with high levels of psychological flexibility (Livheim et al., 2014). For the first LMR analysis with three predictor variables, the power was just below the recommended level (.80) at 0.78. For the subsequent analyses that included only one predictor variable, power was above the recommended amount at 0.90.

Chapter 4: Results

Exploratory Factor Analysis

What is the factor structure of psychological flexibility, as measured by the Acceptance and Action Questionnaire-2 (AAQ-II; Bond et al., 2011), for adolescents with SEB problems? A Principal Axis Factor Analysis with an oblique direct oblmin rotation was conducted to determine the underlying structure of the 7-item AAQ-II questionnaire.

Assumptions of independent sample and normality were met (skewness and kurtosis were within the accepted range of -2 to 2; Lomax, 2001). The assumption of non-linear combinations was also met through examining the determinant value (0.039). Additionally, the factorability and sampling adequacy were tested through the Kaiser-Meyer-Olkin (KMO) measure, which was found to be within the adequate range (0.829) and the Bartlett test value ($p < 0.001$) indicated that the variables were correlated enough to conduct a factor analysis. Table 1 shows the mean, standard deviation and correlations between the variables in the analysis.

Overall, the analysis found a single factor with an un-rotated solution. No iterations and rotations were needed as the initial analysis extracted only one factor, indicating that rotations would not further aid in interpretation of the data. Moreover, visual examination of the scree plot (see Figure 1) and the application of the Kaiser rule, which requires the Eigenvalue to be greater than one in order to retain a factor (3.945), both found a one-factor solution. This single factor solution explained 49.5% of the overall variance, which is lower than the accepted standard of 70% or more (Stevens, 2009). However, due to the single-factor extraction and taking into consideration other criteria for factor selection, the single-factor solution was accepted as the final solution. Additionally, a reliability analysis for AAQ-II was conducted and found adequate reliability, with a Cronbach's alpha of 0.87, which is above the accepted criteria of greater than

0.7 (Kline, 2000). Both of these results were consistent with the hypothesized results for the first research question.

Regression Analyses

The subsequent analyses involved a series of linear regressions. For all of these analyses, the assumption of normality of the data was met based on analysis of histograms, P-Plots, and adequate range of skewness and kurtosis (within -2 and 2; see Table 2 for details). The only exception was for the family support and external motivation variables, which had slightly elevated kurtosis values. Transformations were conducted on these variables with no improvement so the original variables were used but should be interpreted with caution. The assumption of linearity was also tested through the use of a scatterplot matrix and was found to be met, in addition to meeting the assumption of normally distributed data and uncorrelated error terms (tested through residual error scatterplot).

The assumption of collinearity was also tested through the use of Tolerance and Variance Inflation Factor (VIF) criteria. For Tolerance values, the conservative criteria for meeting the assumption is based on Leech and colleagues (2008) recommendation of having a Tolerance value higher than one minus adjusted R^2 and the more liberal criteria suggested by Studenmund (2001) of a Tolerance value of higher than 0.20. For the VIF values, there are again several suggested criteria ranging from greater than five to greater than 10 (Studenmund, 2001). Due to lack of any strong justification for using one rule over another, the assumptions were analyzed using both conservative and liberal criteria.

Based on these criteria, the assumption of absence of collinearity was met for all analyses based on the VIF values (See Tables 4-14 for details). Examining the Tolerance values using the more liberal criteria, all analyses met the assumption of absence of collinearity. However, using

the more conservative criteria recommended by Leech and colleagues (2008), some of the variables in the two analyses of research question two did not meet the assumption. Specifically, the Tolerance values in the first analysis of research question two for ethnicity (0.791), income (0.844), special education label (0.918), and treatment versus control (0.843) were below the criteria of one minus adjusted R^2 (0.983). Similarly, for the second (iterative) analysis for research question two, the Tolerance values for ethnicity (0.865) and income (0.864) were below the criteria of one minus adjusted R^2 (0.989). Special education label (0.999) was the only variable that had an acceptable Tolerance value based on the criteria from Leech and colleagues (2008). Overall, the assumption of absence of collinearity was met for all variables using liberal criteria for both Tolerance and VIF values but not all variables met the assumption using more stringent criteria for Tolerance values. As such, the current results of the analyses in research question two should be interpreted with caution.

Does ethnicity, income, special education label and membership in treatment or control group significantly predict higher levels of psychological flexibility or its subcomponents based on the factor analysis, as measured by the AAQ-II, for adolescents with SEB problems? For this research question, a multiple linear regression was conducted to determine the best linear combination of ethnicity, income, special education label and membership in treatment or control group for predicting psychological flexibility scores. The inter-correlations for the variables in this analysis can be found in Table 3. Overall, this combination of variables was not statistically significant in the prediction of psychological flexibility, $F(4, 59) = 1.27, p = 0.293$ nor were any of the individual predictors significant. The adjusted R^2 value was 0.017, indicating that the predictor variables in this analysis explained approximately 2% of the overall variance in psychological flexibility. Additionally, the beta

weights for each predictor were -.13 for ethnicity, .05 for income, .19 for SPED labels and .16 for Treatment Group, but due to lack of significance for the overall model, beta weights cannot be interpreted here.

In addition to these results, a follow up iteration of the analysis was conducted using the same variables except for treatment and control group membership, which was excluded as it was found to be non-significant in the initial analysis and was not a variable of interest and only included in the initial analysis to make sure the treatment and control groups were not significantly different from each other. For this subsequent analysis, the combination of demographic variables was once again not statistically significant in the prediction of psychological flexibility, $F(3, 60) = 1.23, p = 0.305$. In addition, there were no significant results when examining the predictors individually. The variance explained based on the adjusted R^2 decreased slightly in this iteration, indicating that the predictor variables explained approximately 1% of the variance in psychological flexibility. The beta weights of the predictors in this iterative model were -.18 for ethnicity, .03 for income, and .15 for SPED labels but like the previous analysis, due to lack of significance for the overall model, these beta weights are not interpretable.

Does psychological flexibility or its subcomponents, as measured by the AAQ-II, significantly predict psychopathology (Behavior Assessment System for Children, Second Edition; BASC-2) and quality of life (Brief Multidimensional Life Satisfaction Scale; BMLSS) for SEB students? For the third research question, a series of linear regressions was conducted to determine how predictive psychological flexibility was of “behavioral symptoms” and “quality of life” (correlations can be found in Table 3). In the first analysis, psychological flexibility was not found to be a significant predictor of BASC-2 scores, $F(1, 61) = 0.046, p =$

0.831, and with an adjusted R^2 value of -0.016, indicating that psychological flexibility explained approximately 0% of the variance in behavioral symptoms. The beta weight in this analysis was -.03, which is uninterruptable due to the lack of significance in predicting psychological flexibility.

In contrast, for the second analysis, psychological flexibility was found to be a significant predictor of BMLSS scores, $F(1, 65) = 5.50, p = 0.022$, with adjusted R^2 value of 0.06, indicating that psychological flexibility explained 6% of the variance in quality of life. The beta weight for this analysis was -.28, indicating that for a one standard deviation increase in the AAQ-2 scores (8.5; indicating higher levels of psychological inflexibility) there was approximately one fourth standard deviation decrease in BMSLSS scores (1.4). This finding is accordance with the hypothesized results, indicating that students with greater psychological flexibility had higher levels of quality of life.

Does psychological flexibility or its subcomponents, as measured by the AAQ-II, significantly predict academic achievement (Woodcock Johnson-III; WJIII) and school engagement (School Engagement Instrument; SEI) for SEB students? For the fourth and final research question, a series of linear regressions was again conducted to determine how predictive psychological flexibility is of academic achievement and subscales of the SEI (correlations can be found in Table 3). For the first analysis examining how much psychological flexibility predicts academic achievement, the results were not statistically significant, $F(1, 45) = 0.221, p = 0.640$, with adjusted R^2 value of -0.017, indicating that psychological flexibility explained approximately 0% of variance in academic achievement, with a beta weight of -.07 (see Table 8 for more details).

For the second part of research question four, six individual analyses were conducted, one for each of the six subscales of the SEI measure (Peer support for learning, teacher student relationships, relevance of school work, future aspirations, family support for learning and external motivation) as dependent variables. For the first analysis examining how much psychological flexibility predicts “peer support for learning,” the result was found to be statistically significant, $F(1, 65) = 9.058, p = 0.004$, with an adjusted R^2 value of 0.109, indicating that psychological flexibility predicted 11% of the variance in “peer support for learning.” Additionally, the beta weight for peer support for learning as $-.35$, indicating that for a one standard deviation increase in AAQ-2 scores (8.5; indicating higher levels of psychological inflexibility), there was approximately one third standard deviation decrease in “peer support for learning” (1.1 points on the SEI subscale of peer support for learning). This result is in agreement with the hypothesized results that psychological flexibility would significantly predict the engagement subscales on the SEI. In this specific case, the results indicate that students with higher levels of psychological flexibility also reported higher levels of peer support for learning.

For the subsequent analyses of the five remaining subscales, no statistically significant results were found (see Tables 10-14 for full details). Specifically, for the analysis of psychological flexibility predicting teacher student relationship, the result was not statistically significant, $F(1, 65) = 1.33, p = 0.250$, with adjusted R^2 value of 0.01, and a beta weight of $-.14$. Similarly, for the analysis of psychological flexibility predicting relevance of school work, the result was not statistically significant, $F(1, 65) = 0.002, p = 0.960$, with adjusted R^2 value of -0.02 , and a beta weight of $.01$. The analysis of psychological flexibility predicting future aspirations also was not statistically significant, $F(1, 64) = 0.110, p = 0.740$, with adjusted R^2 value of -0.010 , and a beta weight of $-.04$. For the analysis of psychological flexibility predicting

family support for learning, the result was not statistically significant, $F(1, 66) = 0.940$, $p = 0.340$, with adjusted R^2 value of -0.001 , and a beta weight of $-.12$. Finally, for the analysis of psychological flexibility predicting external motivation, the result was not statistically significant, $F(1, 66) = 1.76$, $p = 0.190$, with adjusted R^2 value of 0.010 , and a beta weight of $.16$.

Chapter 5: Discussion

The current study examined the role of psychological flexibility as a promising transdiagnostic construct among a population of adolescents with social, emotional, and behavioral problems (SEB). Specifically, the study investigated both the dimensionality of psychological flexibility (as measured on the AAQ-II) and relationship to other relevant variables (demographics, quality of life, mental health, academics/school functioning) for adolescents with SEB.

Findings

In terms of dimensionality of psychological flexibility among SEB adolescents, an exploratory factor analysis was conducted to determine how many factors comprise the construct. Based on the underlying theory of psychological flexibility and previous empirical research, it was hypothesized that psychological flexibility would have a unidimensional structure (Bond et al., 2011, Greco, et al., 2008). Concordant with this hypothesis, the current study found that a single factor was the best fit for the data, explaining approximately 49% of the variance.

Additionally, the reliability of the AAQ-II among SEB adolescents was also examined and was found to have a Cronbach alpha of 0.87, indicating that the measure has high reliability (Kline, 2000). However, because of the small sample size and the low amount of variance explained by the one factor solution (typically 70% is expected; Stevens, 2009), these results should be viewed with caution. Moreover, despite obtaining a one-factor solution in this analysis, these results could be due to the brief nature of the AAQ-2 measure, which may not include enough items to test subcomponents of psychological flexibility. Indeed, some recent research has suggested that the construct of psychological flexibility may be multidimensional and

requires closer examination, even though most empirical studies still support the one-factor model (Ciarrochi, Sahdra, Marshall, Parker & Horwath, 2014). Despite these concerns, the results of this analysis correspond to similar studies conducted with the adult population using the AAQ-II, and indicate that the AAQ-II may be a reliable measure of overall psychological flexibility among adolescents.

Based on the one-factor solution, the relationships of psychological flexibility and relevant demographic, psychological and academic variables were explored. In terms of demographic variables (ethnicity, income, special education labels and treatment versus control groups), contrary to the hypothesized results, the current analysis found that none of the demographic variables significantly predicted psychological flexibility. Moreover, even in subsequent iterations of the analysis that removed the variable of treatment versus control group, none of the demographic variables was found to be a significant predictor.

These results are somewhat surprising based on previous adult literature indicating that some relationship should be present between these demographic variables and psychological flexibility (Bond et al., 2010). The only result that aligned with the hypothesis for this research question was for the treatment vs. control group variable, in which no significant differences were found between the two groups, as expected based on the results of the larger randomized trial. For the other variables, there are several factors that may explain these unexpected findings. One is developmental considerations, such as the student's ability to fully understand the questions on the AAQ-II. Specifically, students may have had difficulty comprehending the questions, which could have had an impact on their ability to accurately report on the construct of interest. In fact, a recent exploratory study among adolescents with depression and anxiety hypothesized that subcomponents of psychological flexibility, such as values, may not be well

formulated among younger individuals, making it harder to report (Swain, Hancock, Hainsworth, & Bowman, 2015). However, this is unlikely for the current study as the first results of the exploratory factor analysis indicated a unidimensional structure and the measure had high reliability, indicating that participants were reporting accurately. An alternative reason, however, could be that psychological flexibility, as measured on the AAQ-II, may not actually be influenced by demographic variables for the population used in the current study. If true, this would indicate that there may be key differences between how this construct works among adolescents and adults, as the adult literature indicates that demographic variables influence psychological flexibility (Bond et al., 2011). However, investigating these reasons was out of the scope of the current study.

For the third research, the relationship between behavioral symptoms and quality of life was explored in terms of how well they were predicted by psychological flexibility. The findings for this analysis were mixed, with a significant relationship between psychological flexibility and quality of life and a non-significant relationship between psychological flexibility and behavioral symptoms. For quality of life, the significant relationship was in the predicted direction, with a standard deviation increase in psychological flexibility predicting a significant increase in quality of life (approximately 1.4 points on the BMSLSS). This finding is in agreement with previous studies on adults and adolescents that have found that psychological flexibility has a positive relationship with QoL (Berghoff, et al., 2013; Feinstein et al., 2011). These results, while optimistic, should be interpreted with caution as psychological flexibility only explained six percent of the overall variance in quality of life.

In contrast, for behavioral symptoms, the non-significant relationship was unexpected, as previous studies with adults and adolescents indicated strong relationships between

psychopathology and psychological flexibility (Greco et al., 2008; Livheim et al., 2014). A possible reason for the unexpected results for behavioral symptoms could be related to how the sample was selected, which was largely based on high levels of behavioral and academic impairment and as such, the variability on the measures of psychopathology may have been too truncated to observe any significant effects. In contrast, variables such as quality of life were not specifically targeted as part of the inclusion criteria and as such, may have had greater variability.

An additional factor that could have influenced these results may be possible differences in the sample studied in this study compared to other studies that have looked at psychological flexibility. One unique aspect of this sample is that it included students with a wide range of concerns ranging from externalizing to internalizing problems. In contrast, previous studies with this age population have looked at homogeneous groups of adolescents, such as those with internalizing problems or medical concerns that have associated psychological impact (Ruiz, 2012). Consequently, the results found in this study suggest it is possible that differences exist between how psychological flexibility affects adolescents with internalizing vs. externalizing concerns.

The fourth research question focused on whether or not psychological flexibility significantly predicted academic and school functioning. There was a paucity of background research to rely on to make hypothesis regarding these variables, but a few studies conducted with adolescents and college-age students indicated that psychological flexibility may have a positive relationship with both academic achievement and student engagement in school. However, the findings from this study indicated that psychological flexibility was not a significant predictor of academic achievement and, with the exception of the variable of “peer

support for learning,” the subscales of student engagement also were not significantly predicted by psychological flexibility. For peer support for learning, a significant positive relationship was found and explained 11% of the variation, indicating that when students report higher psychological flexibility, they also perceived greater levels of peer support for their learning. Similar to the significant relationship found for QoL, this finding is promising but should be viewed with caution as the overall variance explained indicates that other factors not tested in the current study explain large portions of the variance.

This relationship with peers has not been directly tested in previous studies but some studies have looked at the impact that interactions with other important individuals in the child’s life, such as parents, have and how they influence the psychological flexibility of the children (Williams, Ciarochi, & Heaven, 2012). These studies have found that the way parents interact with children has a significant impact on the child’s level of psychological flexibility. Interestingly for the current study, the variable of family support for learning was not significant, which is not what was expected from the existent literature. One relevant difference that could explain this result is that most of the previous studies showing a significant relationship between parent interactions and child psychological flexibility were conducted with very young children. In contrast, the current study looked at adolescents, who may be much more influenced by their peers compared to younger children who rely more on their parents. Alternatively, the studies with younger children often relied on parent reports of the child’s functioning whereas the current study relied on adolescent self-reports, which could also account for the difference in the results.

For academic achievement, no relationship was found despite some previous research that indicated improved school functioning was associated with increased psychological

flexibility (Greco et al., 2008). These findings could be due to difference in how achievement was measured, such as a regular school-based test versus a protocol-based standardized achievement test (WJ-III). That is, the WJ-III may not be sensitive enough to pick up on smaller differences in academic ability. An additional factor that may influence this relationship might be that skill deficits were related to having a learning disability, of which a large portion of the current sample was diagnosed (58% out of all the students diagnosed with disabilities). Because of the diagnoses, academic difficulties might persist, and would not be expected to change only based on psychological flexibility or emotional regulation. In other words, students may have high psychological flexibility but lack the appropriate instruction or skills to change their achievement, despite having the emotional control to pursue the task.

Limitations

The findings in this study should be viewed in light of certain limitations. One factor was the sample size, which limited both the type of analysis that could be conducted as well as the confidence placed in the conclusions drawn from the current study. For example, a more robust analysis could have been conducted by combining the predictors into one analysis if the sample size were larger. Even for the current analysis, the small sample size could have contributed to some minor issues with assumption testing, such as slightly elevated kurtosis and collinearity. In terms of the analysis for dimensionality, a larger sample size could have potentially allowed for a follow up confirmatory analysis, adding to the confidence in the one-factor solution found in the current analysis.

A larger sample size could also provide greater number of participants in subgroups, allowing for more refined analysis, such as testing not only for behavioral symptoms but also further analyzing the difference between internalizing and externalizing behavior problems.

Furthermore, unlike previous studies of psychological flexibility, the current study looked at adolescents with SEB, which is a broad category of individuals with various clinical needs. Even within special education classification, there was a range of diagnosis from learning disabilities (58%), emotional disturbance (26%) and other health impairment (8%). In terms of psychiatric conditions, the category of SEB can include students with anxiety, depression, conduct disorder, attention deficit hyperactivity disorder and bipolar disorder. Given a larger sample size, these subgroups could have been analyzed separately to assess the relationship between each clinical subgroups and psychological flexibility.

Moreover, despite the fact that psychological flexibility is a transdiagnostic construct and should cut across these disorders, there still may be important differences between the possible sub-conditions under the label of SEB that may have been obscured when testing for an overall relationship for the whole group. For example, a study Levin and colleagues (2014) investigated psychological flexibility as a transdiagnostic construct among college students by examining how psychological flexibility related to disorders such as depression, anxiety, eating disorders, substance abuse and comorbid conditions. The results of this study indicated that psychological flexibility varied by disorders showing, for example, a strong relationship between psychological flexibility and lower levels of anxiety and depression but mixed results for substance abuse and eating disorders. Further analysis in this study also indicated subgroup differences within disorders, such as a significant relationship between psychological flexibility and lifetime history of substance abuse and eating disorders but not for those who currently had the disorder (Levin et al.). These findings, while tentative and with an older population, provide some support for the contention that the subgroup analysis based on specific disorders may yield different results than the ones found currently based on a whole group analysis.

This study was also limited by the single measure used to assess psychological flexibility, AAQ-II, which is a very brief measure that was developed for adults. Due to the fact that this measure was designed with adults in mind, it may not be appropriate for adolescents as they may interpret the questions very differently. Other measures, such as the “Avoidance and Fusion Questionnaire for Youth” (AFQ-Y; Greco et al., 2008), while limited to only subcomponents of psychological flexibility, could have been more accurate for assessing psychological flexibility as it was designed for younger children. Additionally, measures with similar but distinct constructs, such as an additional measure of emotional regulation, would have been helpful in teasing out questions related to possible student bias or reluctance to report lower emotional regulation skills. For example, if the additional measure that tested emotional regulation obtained different results from the current study, such as a positive rather than negative relationship between emotional regulation and quality of life, these findings may indicate that students were not reporting accurately. Also, as is typical in studies involving children, often times multiple informants are used in conjunction with children’s self-report to obtain a more accurate picture of the child’s functioning. The absence of corroborating parent or teacher reports of their perception of the child’s level of psychological flexibility limits conclusions regarding the accuracy of adolescent’s self-reporting.

Implications and Future Research

Despite these limitations, the current study provides some important directions to explore in future research. In particular, future research should examine psychological flexibility among adolescents (and younger children) using a larger sample size to address the limitations of the current study. In particular, the larger sample size would allow for subgroup analysis to determine whether there are important differences among different clinical populations.

Specifically, future studies should examine potential differences across broad categories of internalizing and externalizing concern as well as more specific subgroups based on either psychiatric or educational diagnosis. Additionally, future studies may also include a non-clinical group that may inform how psychological flexibility differs among those who are struggling with SEB and those who are not.

A larger sample size would also allow for additional variables to be tested as part of the analysis to parse out the important differences between psychological flexibility and related constructs among adolescents. These additional variables could include competing constructs as mediators of change, such as cognitive restructuring, which can be directly compared to psychological flexibility. Cognitive restructuring, in particular, would be a good candidate for a competing construct as the theory behind cognitive restructuring contradicts the theory behind psychological flexibility (Arch & Craske, 2008). Specifically, while cognitive therapy predicts that cognitive restructuring leads to modification in threat appraisals and changes in attentional biases towards threats (Mogg & Bradley, 1998), psychological flexibility model predicts that cognitive restructuring, without addressing psychological flexibility, would lead to increase in psychological distress (Arch & Craske, 2008). By testing these variables together, important differences or similarities across these competing constructs could be examined. Additionally, similar variables, such as anxiety sensitivity (Reiss & McNally, 1985), which is fear of arousal related sensations as well as appraisal of negative consequences (death, social rejection) of these sensations, could also be tested along with psychological flexibility. Anxiety sensitivity has been shown to be a strong psychological risk factor for psychopathology such as anxiety disorders (Berman, Wheaton, McGrath, & Abramowitz, 2010) and in at least one study with adults, to have incremental predictive validity for psychopathology when tested in conjunction with

psychological flexibility (Esteve, Ramirez, & Lopez-Martinez, 2012). As such, adding variables such as anxiety sensitivity with a larger sample size of adolescents could help to determine if similar relationships are present within the younger samples and whether or not psychological flexibility adds incremental validity above and beyond these similar constructs.

For the construct of psychological flexibility itself, future research could look to supplement global measures such as AAQ-II with measures that test only parts of the psychological flexibility model, such as the AFQ-Y (Greco et al., 2008). In fact, a recent experimental study found that when looking at the components of psychological flexibility separately among adolescents, only acceptance and diffusion were significant mediators of change between ACT treatment and positive treatment outcomes for depression and anxiety (Swain, Hancock, Hainsworth, & Bowman, 2015). These results are in contrast to similar studies within the adult literature, which have found that all sub-components of psychological flexibility are significant mediators of change between treatment and outcomes such as improved QoL and reduced symptoms. As such, this may indicate some important differences among adolescents regarding the construct of psychological flexibility that need to be further explored. Moreover, the factor analysis conducted as part of the current study found a single-factor solution for psychological flexibility among adolescents, which explained less than half of the variance. The lack of robust results in terms of amount of variance explained might indicate some key differences in psychological flexibility as a construct among adolescents that can be investigated further by testing the sub-components of psychological flexibility separately.

Another area of important research in the future to further evaluate psychological flexibility among adolescents with SEB would be to use more accurate and valid techniques of measuring psychological flexibility, including creating new measures dedicated to assessing

psychological flexibility of adolescents. Whereas the current study was limited by a single brief measure, future studies should look to address this limitation by using multiple measures to assess self-reported psychological flexibility and also through the use of a multi-informant approach by including parents and teacher ratings of the adolescents' psychological flexibility. The use of multiple informants is generally considered a more accurate method of assessing a construct (Reyes, Thomas, Goodman, & Kundey, 2013) and for the population of adolescents with SEB, may help to identify any biases that may exist in self-reporting. However, no current measures exist that assess parent, teacher or other stakeholder reports in addition to self-report measures and as such, could be the focus of future research. Moreover, for creating new measures, researchers should focus on a longer measure with multiple components of psychological flexibility that is able to evaluate each component of the construct independently to address concerns raised earlier. Additionally, creating a dedicated measure of psychological flexibility would also have the advantage of developing questions that are appropriate for adolescents and could include a focus on specific domains of functioning relevant to younger populations, such school related problems.

Additionally, some researchers have also started to examine psychological flexibility as a dynamic, rather than static, construct with methods such as using technology to measure psychological flexibility frequently and throughout the day (Kashdan et al., 2014; Machell, Goodman, & Kashdan, 2015). These methods may prove to be more appropriate ways of measuring psychological flexibility as some preliminary studies indicate that psychological flexibility is context dependent, thus self-reports of psychological flexibility could be influenced by the context (i.e., social situation) in which participants rate themselves (Kashdan et al., 2014; Machell, Goodman, & Kashdan, 2015).

Future research should also look to go beyond cross-sectional design (one time period) to include longitudinal designs. Cross-sectional designs like the one used in the current study do not allow for analysis over time that could potentially test for process or mediating role that psychological flexibility. For example, multiple data points would allow for analysis that can examine how changes in psychological flexibility over time correspond to changes in other measures. This type of analysis would not only examine relationships between psychological flexibility and relevant variables but also determine potential causal relationships that may exist between them. For example, the current analysis found a positive relationship between psychological flexibility and peer support for learning, but the direction of the effect cannot be determined. In other words, it is not clear whether increases in psychological flexibility lead to more peer support or increases in peer support lead to increase in psychological flexibility. Additionally, longitudinal design can also investigate long term impact of change in psychological flexibility as some studies done with adults indicate treatments such as ACT that target psychological flexibility lead to greater gains in QoL compared to CBT, but these differences are apparent only in long-term follow up outcomes (Berghoff et al., 2013). As such, longitudinal studies that follow students over time can investigate how strongly psychological flexibility predicts QoL over longer periods of time compared to other known predictors.

Finally, the two significant and positive relationships that were found in this study (QoL and the subscale of peer support for learning on the SEI measure) have implications for future research. The findings indicate that increase in QoL leads to an increase in psychological flexibility. However, based on the current results, it is difficult to determine if this statistically significant difference is a clinically significant difference, as clinical cut-off scores were not used. For example, the recommended clinical cut-off indicating clinically significant low quality

of life for the BMSLSS measure of QoL is a score below the 25th percentile (Athay, Kelley, & Reeves, 2012). However, the current findings only indicate the amount of change that occurred and not if this change was from clinically low levels of quality of life to non-clinical levels. As such, future research should explore this relationship along clinical cut-offs to examine if the changes in QoL are related to a clinically significant change in psychological flexibility. Moreover, future treatment studies could further explore this significant relationship by directly targeting psychological flexibility to see if there is a corresponding change in QoL.

For student engagement subscales, even though a significantly relationship was found for peer support for learning, no significant relationships were found for the other subscales, such as those focusing on teachers and family support. This is an interesting finding that should be further explored in future studies. Specifically, due to the increased importance of peer relationships among adolescents as compared to younger children, the current findings may indicate that peers play a greater role for adolescents in terms of facing difficult thoughts and emotions (Steinberg, 2010; Steinberg & Monohan, 2007). However, the SEI is a limited measure in terms of examining the relationships between peers, teachers, and family as it primarily tests for student engagement in schools. As such, future research should replicate this finding with more robust measures of relationships of adolescents with peers, teachers and family members to see if the relationship found in the current study is replicated. If positive peer relationships are associated with high psychological flexibility, further studies including treatment studies can examine if peer interventions are a promising option for increasing psychological flexibility among adolescents. Exploring these future directions will help to better understand the role and potential importance that psychological flexibility plays in the mental health and global functioning of adolescents with SEB.

In terms of implications for practitioners, the current study demonstrated that psychological flexibility is linked with improved QoL and better-perceived peer support for SEB students and as such, may indicate potential benefits of targeting psychological flexibility as part of an intervention. Taking into consideration previous literature that shows promising results of ACT with adolescent population for conditions such as depression, anxiety, chronic health and stress, using ACT intervention to target psychological flexibility to improve QoL and peer relationships may be a promising approach for practitioners. However, due to the treatment literature focusing almost exclusively on internalizing conditions, practitioners are cautioned when applying ACT to adolescents with externalizing concerns. This is especially salient as the current study, which focused on SEB students that included externalizing conditions, did not find results as strong as in previous research on ACT with the adolescent population. Additionally, due to the lack of any relationship between psychological flexibility and academic outcomes in the current study, practitioners are cautioned in using ACT or targeting psychological flexibility for students struggling with academic problems.

Overall, the results of this study were surprising in the context of previous studies examining the role of psychological flexibility among adults and similar population of children and adolescents. The results of the current study indicate that psychological flexibility is a unidimensional construct as measured on the AAQ-2, similar to the adult literature. However, unlike previous research, no strong relationships were found between the demographic, mental health and school variables and psychological flexibility. The few significant relationships that were found require further research to both replicate these findings as well as clarify potential implications. Overall, while psychological flexibility has been shown to be a very promising transdiagnostic construct in adult literature, the current study results suggest that among

adolescents with SEB, it has a limited relationship to important outcomes variables (i.e., behavioral symptoms, quality of life, academic performance) and may have limited applicability for both research and practice.

References

- Achenbach, T. M. (2006). As others see us: clinical and research implications of cross-informant correlations for psychopathology. *Current Directions in Psychological Science, 15*, 94–98
- Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument. *Journal of School Psychology, 44*, 427 – 445
- Arch, J. J. & Craske, M. G. (2008). Acceptance and commitment therapy and cognitive behavioral therapy for anxiety disorders: Different treatments, similar mechanisms? *Clinical Psychology: Science and Practice, 15*, 263-279.
- Arch, J. J., Eifert, G. H., Davies, C., Vilardaga, J. C. P., Rose, R. D., et al., (2012). Randomized clinical trial of cognitive behavior therapy (CBT) versus acceptance and commitment therapy (ACT) for mixed anxiety disorders. *Journal of Consulting and Clinical Psychology, 80*, 750-765.
- Athay, M. M., Kelley, S. D. & Dew-Reeves, S. E. (2012). Brief multidimensional students' life satisfaction scale – PTPB version (BMSLSS-PTPB): Psychometric properties and relationship with mental health symptom severity over time. *Administration and Policy in Mental Health and Mental Health Services Research, 39*, 30-40.
- Atkins, M., Frazier, S., Adil, J. A., & Talbott, E. (2003). School mental health in urban communities. In M. Weist, S. Evans & N. Tashman (Eds.), *School mental health handbook* (pp. 165– 178). New York: Kluwer Academic/Plenum
- Biglan, T. (2004). Contextualism and the development of effective prevention practices. *Prevention Science, 5*, 15-21.

- Berghoff, C. R., Forsyth, J. P., Ritzert, T. R. & Sheppard, S. C. (2013). Comparing paths to quality of life: Contributions of ACT and cognitive therapy intervention targets in two highly anxious samples. *Journal of Contextual Behavioral Science*, 3, 89-97.
- Berman, N. C., Wheaton, M. G., McGrath, P. & Abramowitz, J. S. (2010). Predicting anxiety: The role of experiential avoidance and anxiety sensitivity. *Journal of Anxiety Disorders*, 24, 109-113.
- Betts, J., Appleton, J. J., Reschly, A. L., Christenson, S. L., & Huebner, S. (2010). A study of the reliability and construct validity of the Student Engagement Instrument (SEI) across multiple levels. *School Psychology Quarterly*, 25(2), 84-93.
- Bond, F. W., & Bunce, D. (2000). Mediators of change in emotion-focused and problem-focused worksite stress management interventions. *Journal of Occupational Health Psychology*, 5, 156-163.
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., et al., (2011). Preliminary psychometric properties of the acceptance and action questionnaire-II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy*, 42, 676-688.
- Blackledge, J. T. & Drake, C. E. (2013). Acceptance and commitment therapy: Empirical and theoretical considerations. In S. Dymond & B. Roche, (Eds.), *Advances in relational frame theory: Research and application*. Oakland, CA: New Harbinger Publications.
- Bricker, J. B., Mull, K. E., Kientz, J. A., Vilardaga, R., Mercer, L. D., Atioka, K. J. & Heffner, J. L. (2014). Randomized, controlled pilot trial of a smartphone app for smoking cessation using acceptance and commitment therapy. *Drug and Alcohol Dependence*, 143, 87-94.
- Burke, K., Muscara, F., McCarthy, M., Dimovski, A., Hearps, S., Anderson, V. & Walser, R. (2014). Adapting acceptance and commitment therapy for parents of children with life-

- threatening illness: Pilot study. *Family, Systems & Health*, 32, 122-127.
- Bussing, A., Fischer, J. Haller, A., Heusser, P., Ostermann, T. & Matthiessen, P.F. (2009). Validation of the brief multidimensional life satisfaction scale in patients with chronic diseases. *European Journal of Medical Research*, 14, 171-177.
- Center for Disease Control and Prevention (2010). National Health and Nutrition Examination Survey (NHANES). Retrived from http://www.nimh.nih.gov/statistics/1ANYDIS_CHILD.shtml
- Cheron, D. M., Ehrenreich, J. T. & Pincus, D. B. (2009). Assessment of parental experiential avoidance in a clinical sample of children with anxiety disorder. *Child Psychiatry and Human Development*, 40, 383-403.
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112, 155–159.
- Ciarrochi, J., Sahdra, B., Marshall, S., Parker P. & Horwath, C. (2014). Psychological flexibility is not a single dimension: The distinctive flexibility profiles of underweight, overweight, and obese people. *Journal of Contextual Behavioral Science*, 3, 236-247.
- Coyne, L. W. & Thompson, A. D. (2011). Maternal depression, locus of control, and emotion regulatory strategy as predictors of preschoolers' internalizing problems. *Journal of Child Family Studies*, 20, 873-883.
- Cummings, J. R. & Druss, B. G. (2011). Racial/ethnic differences in mental health service use among adolescents with major depression. *Journal of the American Academy of Child and Adolescent Psychiatry*, 50, 160-170.
- David, D., & Montgomery, G. H. (2011). The Scientific Status of Psychotherapies: A New Evaluative Framework for Evidence-Based Psychosocial Interventions. *Clinical Psychology: Science and Practice*, 18, 89–99.

- Davis, S.D., Young, E.L., Hardman, S., & Winters, R. (2011). Screening for emotional and behavioral disorders. *Principal Leadership*. Retrieved from http://www.nassp.org/Content/158/pl_may11_schoolpsych.pdf
- Dymond, S. & Roche, B. (2013). *Advances in relational frame theory: Research and application*. Oakland, CA: New Harbinger Publications.
- Ehrenreich, J. & Chu, B. C. (2013). *Transdiagnostic treatments for children and adolescents: Principles and practice*. New York, NY: Guilford Press.
- Elliott, B. A., & Larson, J. T. (2004). Adolescents in mid-sized and rural communities: Foregone care, perceived barriers, and risk factors. *Journal of Adolescent Health, 35*, 303-309.
- Esteve, R., Ramirez-Maestre, C. & Lopez-Martinez, A. E. (2012). Experiential avoidance and anxiety sensitivity as dispositional variables and their relationship to the adjustment to chronic pain. *European Journal of Pain, 16*, 718-726.
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175-191.
- Feinstein, A. B., Forman, E. M., Masuda, A., Cohen, L. L., Herbert, J. D., Moorthy, I. N. & Goldsmith, D. P. (2011). Pain intensity, psychological inflexibility, and acceptance of pain as predictors of functioning in adolescents with juvenile idiopathic arthritis: A preliminary investigation. *Journal of Clinical Psychology in Medical Settings, 18*, 291-298.
- Feros, D. L., Lane, L., Ciarrochi, J. & Blackledge, J. T. (2013). Acceptance and commitment therapy (ACT) for improving the lives of cancer patients: A preliminary study. *Psychooncology, 22*, 459-464.

- Forman, E. M., Park, J. A., Goetter, E. M., Herbert, J. D., & Yuen, E.K. (2012). Long-term follow up of a randomized controlled trial comparing acceptance and commitment therapy and cognitive therapy for anxiety and depression. *Behavior Therapy, 43*, 801-811.
- Funk, B.A., Huebner, E.S. & Valois, R.F. (2006). Reliability and validity of a brief life satisfaction scale with a high school sample. *Journal of Happiness Studies, 7*, 41-54.
- Greco, L. A., Lambert, W. & Baer, R. A (2008). Psychological inflexibility in childhood and adolescences: Development and evaluation of the avoidance and fusion questionnaire for youth. *Psychological Assessment, 20*, 93-102.
- Quantlett-Gilbert, J. Connell, H., Clinch, J. & McCracken, L. M. (2013). Acceptance and values-based treatment of adolescents with chronic pain: Outcomes and their relationship to acceptance. *Journal of Pediatric Psychology, 38*, 72-81.
- Harvey, A. (2013). Transdiagnostic mechanisms and treatments for youth with psychiatric disorders: An opportunity to catapult progress? In J. Ehrenreich & B. C. Chu (Eds.), *Transdiagnostic treatments for children and adolescents: Principles and practice*. New York, NY: Guilford Press.
- Hayes, S. C., Wilson, K. G., Gifford, E. V., Folllete, V. M. & Strosahl, V. M. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology, 64*, 1152-1168.
- Hayes, L., Body, C. P. & Sewell, J. (2011). Acceptance and commitment therapy for the treatment of adolescent depression: A pilot study in a psychiatric outpatient setting. *Mindfulness, 2*, 86-94.
- Hayes, S. C., Strosahl, K.D. & Wilson, K. G. (1999). *Acceptance and Commitment Therapy: An*

- Experiential Approach to Behavior Change*. New York, NY: Guilford Press.
- Hayes, S. C., Strosahl, K.D. & Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., Polusny, M. A., et al. (2004). Measuring experiential avoidance: A preliminary test of working model. *Psychological Record, 54*, 553-578.
- Hayes, S. C., Villate, M., Levin, M. & Hildebrandt, M. (2011). Open, aware, and active: Contextual approaches as an emerging trend in the behavioral and cognitive therapies. *Annual Review of Clinical Psychology, 7*, 141-168.
- Howe-Martin, L. S., Murrell, A. R. & Guarnaccia, C. A (2012). Repetitive nonsuicidal self-injury as experiential avoidance among a community sample of adolescents. *Journal of Clinical Psychology, 68*, 809-828.
- Huebner, E.S., & Gilman, R. (2002). An introduction to the multidimensional students' life satisfaction scale. *Social Indicator Research, 60*, 115-22.
- Iverson, K. M., Follette, V. M., Pistorello, J. & Fruzzetti, A. E. (2012). An investigation of experiential avoidance, emotion dysregulation , distress tolerance in youth adult outpatients with borderline personality disorder symptoms. *Personality Disorders, 3*, 415-422.
- Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement, 20*, 141-151.
- Kashdan, T. B., Goodman, F. R., Machell, K. A., Kleinman, E. M. & Monfort, S. S. (2014). A contextual approach to experiential avoidance and social anxiety: Evidence from an experimental interaction and daily interactions of people with social anxiety disorder. *Emotion, 14*, 769-781.
- Kashdan, T., & Rottenberg, J. (2010). Psychological flexibility as a fundamental aspect of health.

Clinical Psychology Review, 30 , 865-878

- Kataoka, S., Zhang, L., & Wells, K. (2002). Unmet need for mental health care among U.S. children: Variation by ethnicity and insurance status. *American Journal of Psychiatry*, 159(9), pp. 1548-1555.
- Kazdin, A. E. (2007). Mediators and mechanisms of change in psychotherapy research. *Annual Review of Clinical Psychology*, 3, 1–27
- Kazdin, A. E. (2011). Evidence-based treatment research: Advances, limitations, and next steps. *American Psychologists*, 1, 685-698.
- Kazdin, A.E. & Blase, S. L. (2011). Rebooting psychotherapy research and practice to reduce the burden of mental illness. *Perspectives on Psychological Science*, 6, 21-37.
- Kieling, C., Baker-Henningham, H., Belfer, M., Conti, G., Ertem, I., Omigbodun, O.,...Rahman, A. (2011). Child and adolescent mental health worldwide: Evidence for action. *The Lancet*, 378, 1515-1525.
- Kline, P. (2000). *The handbook of psychological testing* (2nd ed.). London: Routledge
- Langley, A. K., Nadeem, E., Kataoka, S. H., Stein, B. D. & Jaycox, L. H. (2010). Evidence-based mental health programs in schools: Barriers and facilitators of successful implementation. *School Mental Health*, 2, 105-113.
- Leech, N. L., Barrett, K. C. & Morgan, G. A. (2008). *SPSS for intermediate statistics: Use and interpretation* (3rd ed.). New York, NY: Routledge/Taylor & Francis.
- Levin, M. E., Hildebrandth, M., Lillis, J. & Hayes, S. C. (2012). The impact of treatment components suggested by the psychological flexibility model: A meta-analysis of laboratory-based component studies. *Behavior Therapy*, 43, 741-756.
- Levin, M. E., MacLane, C., Daflos, S. , Seeley, J. R., Hayes, S. C., Biglan, T. & Pistorello, J.

- (2014). Examining psychological inflexibility as a transdiagnostic process across psychological disorders. *Journal of Contextual Behavioral Science*, 3, 155-163.
- Lillis, J., & Hayes, S. C. (2008). Measuring avoidance and inflexibility in weight related problems. *International Journal of Behavioral Consultation and Therapy*, 4, 372-378.
- Livheim, F., Hayes, L. Ghaderi, A., Magnusdottir, T. Hogfeldt, A., et al., (2014). The effectiveness of acceptance and commitment therapy for adolescent mental health: Swedish and Australian pilot outcome. *Journal of Child and Family Studies*. *Published online first*.
- Lomax, R. G. (2001). *Statistical concepts: A second course for education and the behavioral sciences*. Mahwah, NJ: Lawrence Erlbaum Publishers.
- Long, D. M. & Hayes, S. C. (2014). Acceptance, mindfulness, and cognitive reappraisal as longitudinal predictors of depression and quality of life in educators. *Journal of Contextual Behavioral Science*, 3, 38-44.
- Luciano, C., Ruiz, F. J., Torres, R. M. V., Martin, V. S., Martinez, O. G. & Lopez, J. C. L. (2011). A relational frame analysis of defusion interactions in acceptance and commitment therapy. A preliminary and quasi-experimental study with at-risk adolescents. *International Journal of Psychology and Psychological Therapy*, 11, 165-182.
- Lundgren, T., Dahl, J., Melin, L. & Kies, B. (2006). Evaluation of acceptance and commitment therapy for drug refractory epilepsy: A randomized controlled trial in south africa-a pilot study. *Epilepsia*, 47, 2173-2179.
- Lungua, A. Harneda, M. S., Rizvib, S. L. & Linehan, M. M. (2014). Impact of dialectical behavior therapy versus community treatment by experts on emotional experience,

- expression, and acceptance in borderline personality disorder, *Behavior Research and Therapy*, 53, 47-54.
- Mansell, W., Harvey, A., Watkins, E. & Shafran, R. (2009). Conceptual foundations of the transdiagnostic approach to CBT. *Journal of Cognitive Psychotherapy*, 23, 6-19.
- March, J. S. (2012). *The multidimensional anxiety scales for children-Second Edition*. North Tonawanda (NY): Multi-Health Systems.
- Masten, A. S. & Cicchetti, D. (2010). Developmental cascade. *Developmental and Psychopathology*, 22, 491-495.
- Merikangas K.R., He, J., Burstein, M., Swanson, S.A., Avenevoli, S., Cui, L., Benjet, C., Georgiades, K., & Swendsen, J. (2010) Lifetime prevalence of mental disorders in U.S. adolescents: Results from the National Comorbidity Study- Adolescent Supplement (NCS-A). *Journal of American Academy of Child Adolescent Psychiatry*, 49, 980-989.
- McCracken, L. M. & Guantlett-Gilbert, J. (2011). Role of psychological flexibility in parents of adolescents with chronic pain: Development of a measure and preliminary correlation analysis. *Pain*, 152, 780-785.
- McCracken, L. M. & Velleman, S. C. (2010). Psychological flexibility in adults with chronic pain: A study of acceptance, mindfulness, and values-based action in primary care. *Pain*, 148, 141-147.
- McCracken, L. M., Vowles, K. E., & Eccleston, C. (2004). Acceptance of chronic pain: Component analysis and a revised assessment method. *Pain*, 107, 159-166.
- Machell, K. A., Goodman, F. R., Kashdan, T. B. (2015) Experiential avoidance and well-being: A daily diary analysis. *Cognition and Emotion*, 29, 351-359.
- Miller, L. D., Martinez, Y. J., Shumka, E. & Baker, H. (2014). Multiple informant agreement of

- child, parent and teacher ratings of child anxiety within community samples. *Canadian Journal of Psychiatry*, 59, 34-39.
- Mogg, K., & Bradley, B. P. (1998). A cognitive-motivational analysis of anxiety. *Behaviour Research and Therapy*, 36, 809-848.
- Nock, M. K. (2011). Conceptual and design essentials for evaluating mechanisms of change. *Alcoholism: Clinical and Experimental Research*, 31, 4s-12s.
- Pinto-Gouveia, J., Gregorio, S., Dinis, A. & Xavier, A. (2012). Experiential avoidance in clinical and non-clinical samples: AAQ-II Portuguese version. *International Journal of Psychology and Psychological Therapy*, 12, 139-156.
- Polusney, M. A., Ries, B. J., Meis, L. A., DeGarmo, D., McCormick-Deaton, C. M., Thuras, P. & Erbes, C. R. (2011). Effects of parents' experiential avoidance and PTSD on adolescent disaster-related posttraumatic stress symptomology. *Journal of Family Psychology*, 25, 220-229.
- Reiss, S., & McNally, R.J. (1985) . Expectancy model of fear. In S. Reiss and R. R. Bootzin (Eds.), *Theoretical issues in behavior therapy* (pp. 107-121). New York: Academic Press.
- Reyes, A. D. L., Thomas, S. A., Goodman, K. L. & Kundey, S. M. A (2013). Principles underlying the use of multiple informants' reports. *Annual Review of Clinical Psychology*, 9, 123-149.
- Reyes, A. D. L., Thomas, S. A., Goodman, K. L. & Kundey, S. M. A (2013). Principles underlying the use of multiple informants' reports. *Annual Review of Clinical Psychology*, 9, 123-149.
- Reynolds WM. (2002). *Reynolds Adolescent Depression Scale, Second Edition., Professional Manual*. Lutz, FL: Psychological Assessment Resource Inc.

- Reynolds, C. R. & Kamphaus, R. W. (2004). *Behavior assessment system for children* (2nd ed.). Circle Pines, MN: American Guidance Services.
- Rosen, G. M. & Davison, G. C. (2003). Psychology should list empirically supported principles of change (ESPs) and not credential trademarked therapies or other treatment packages. *Behavior Modification, 27*, 300-312.
- Ruiz, F. J. (2012). A review of acceptance and commitment therapy (ACT) empirical evidence: Correlation, experimental psychopathology, component and outcome studies. *International Journal of Psychology and Psychological Therapy, 10*, 125-162.
- Rutter, M. (2008). Developing concepts in developmental psychopathology. In J.J. Hudziak (ed.), *Developmental psychopathology and wellness: Genetic and environmental influences* (pp. 3–22). Washington, DC: American Psychiatric Publishing.
- Schmaltz, J. E., & Murrell, A. R. (2010). Measuring experiential avoidance in adults: The Avoidance and Fusion Questionnaire. *International Journal of Behavioral Consultation and Therapy, 6*, 198-213.
- Schramm, A. T., Venta, A. & Sharp, C. (2013). The role of experiential avoidance in the association between borderline features and emotional regulation in adolescents. *Personality Disorders: Theory, Research, and Treatment, 4*, 138-144.
- Seligson, J.L., Huebner, E.S. & Valois, R.F. (2005). An investigation of a brief life satisfaction scale with elementary school children. *Social Indicators Research, 73*, 355-374.
- Shea, S. E. & Coyne, L. W. (2011). Maternal dysphoric mood, stress, and parenting practices in mothers of head start preschoolers: The role of experiential avoidance. *Child & Family Behavior Therapy, 33*, 231-247.
- Shenk, C. E., Putnam, F. W. & Noll, J. G. (2012). Experiential avoidance and the relationship

- between child maltreatment and PTSD symptoms: preliminary evidence. *Child Abuse & Neglect*, 36, 118-126.
- Smons, J.S., & Gaher, R.M. (2005). The Distress Tolerance Scale: Development and validation of a self-report measure. *Motivation and Emotion*, 29, 83-102.
- Siyez, D.M. & Kaya, A. (2008). Validity and reliability of the brief multidimensional students' life satisfaction scale with turkish children. *Journal of Psychoeducational Assessment*, 26, 139-147.
- Steinberg, L. (2010). *Adolescence*. New York, NY: McGraw Hill.
- Steinberg, L. & Monahan, K. C. (2007). Age differences in resistance to peer influence. *Developmental Psychology*, 43, 1531-1543.
- Stevens, J. P. (2009). *Applied Multivariate Statistics for the Social Sciences*. New York, NY:Routledge.
- Studenmund, A. H. (2001). *Using Econometrics: A Practical Guide*. Boston: Addison Wesley.
- Swain, J., Hancock, K., Hainsworth, C. & Bowman, J. (2015). Mechanism of change: Exploratory outcomes from a randomised controlled trial of acceptance and commitment therapy for anxious adolescents. *Journal of Contextual Behavior Science*, 4, 56-67.
- The Psychological Corporation. (1999). *Wechsler Abbreviated Scale of Intelligence*. San Antonio: Author.
- United Nations Children's Fund. (2007). *Innocent Report Card 7: Child poverty in perspective: An overview of child well-being in rich countries*. New York: UNICEF.
- Varra, A. A., Hayes, S. C., Roget, N., & Fisher, G. (2008). A randomized control trial examining the effect of acceptance and commitment training on clinician willingness to Use evidence-based pharmacotherapy. *Journal of Consulting and Clinical Psychology*, 76,

- Venta, A. Hart, J. & Sharp, C. (2013). The relation between experiential avoidance, alexithymia and emotion regulation in inpatient adolescents. *Clinical Child Psychology and Psychiatry, 18* -398-410.
- Venta, A., Sharp, C. & Hart, J. (2012). The relation between anxiety disorder and experiential avoidance in inpatient adolescents. *Psychological Assessment, 24*, 240-248.
- Wechsler, D. (1991). *The Wechsler intelligence scale for children—Third Edition*. San Antonio, TX: The Psychological Corporation
- Wechsler, D. (2004). *The Wechsler intelligence scale for children—Fourth Edition*. London: Pearson Assessment.
- Wechsler, D. (2008). *Wechsler Adult Intelligence Scale – Fourth Edition*. San Antonio, TX: Pearson.
- Whelan, R. & Schlund, M. W. (2013). Reframing relational frame theory research: Gaining a new perspective through the application of novel behavioral and neuropsychological methods'. In S. Dymond & B. Roche, (Eds.), *Advances in relational frame theory: Research and application*. Oakland, CA: New Harbinger Publications.
- Wicksell, R. K., Melin, L., Lekander, M. & Olsson, G. L. (2009). Evaluating the effectiveness of exposure and acceptance strategies to improve functioning and quality of life in longstanding pediatric pain--a randomized controlled trial. *Pain, 141*, 248-257.
- Wicksell, R. K., Olsson, G. L. & Hayes, S. C. (2011). Mediators of change in acceptance and commitment therapy for pediatric chronic pain. *Pain, 152*, 2792-2801.
- Williams, K. E., Ciarochi, J. and Heaven, P. C. L. (2012). Inflexible parents, inflexible kids: A 6-year longitudinal study of parenting style and the development of psychological

flexibility in adolescents. *Journal of Youth and Adolescence*, 41, 1053-1066.

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001a). *Woodcock-Johnson III*. Itasca, IL: Riverside Publishing.

Zullig, K.J., Huebner, E.S., Gilman, R., Patton, J.M. & Murray, K.A. (2008). Validation of the brief multidimensional students' life satisfaction scale among college students. *American Journal of Health Behavior*, 29, 206-214.

Zullig, K.J., Huebner, E.S., Patton, J.M. & Murray, K.A. (2009). The brief multidimensional students' life satisfaction scale college version. *American Journal of Health Behavior*, 33, 483-49

Table 1

Factor Analysis Variable Characteristics

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
My painful experiences and memories									
1 make it difficult for me to live a life that I would value.	2.40	1.62	--						
2 I'm afraid of my feelings	2.14	1.51	.33	--					
3 I worry about not being able to control my worries and feelings	2.29	1.57	.30	.59	--				
4 My painful memories prevent me from having a fulfilling life	2.07	1.36	.54	.44	.53	--			
5 Emotions cause problems in my life	3.01	1.78	.40	.48	.68	.56	--		
6 It seems like most people are handling their lives better than I am	2.97	1.78	.44	.33	.41	.51	.63	--	
7 Worries get in the way of my success	2.67	1.56	.34	.42	.61	.54	.55	.59	--

Table 2

Participant Characteristics

Variables	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Psychological Flexibility (AAQ_II)	73	31.41	8.52	0.64	1.19
Ethnicity	66	--	--	--	--
Income	67	--	--	--	--
SPED Label	69	--	--	--	--
Treatment v. Control Group	72	--	--	--	--
Quality of Life (BMSLSS)	67	23.58	5.51	-.18	.04
Behavior Symptoms (BSI)	63	62.49	12.14	0.46	.23
Achievement (WJ3)	47	90.28	16.25	.34	-.19
Teacher Student Relationships (SEI)	67	27.66	3.65	0.49	1.54
Relevance of work (SEI)	67	23.31	4.31	.08	.48
Peer Support (SEI)	67	18.31	3.16	-.16	.10
Future Aspirations (SEI)	66	22.11	4.22	-.94	1.65
Family Support (SEI)	68	12.53	2.39	-.97	2.12

External Motivation (SEI)	68	5.97	1.22	-.60	2.37
---------------------------	----	------	------	------	------

Note: AAQ-2 = Acceptance and Action Questionnaire-2; BMSLSS = Brief Multidimensional Students' Life Satisfaction

Questionnaire; WJ3 = Woodcock Johnson III: Test of Achievement; BSI = Behavioral Symptoms Index; SEI = Student Engagement

Instrument

Table 3

Inter-correlations of Independent and Dependent Variables in the Regression Analyses

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Ethnicity	--													
2 Income	-.37**	--												
3 SPED Label	-.01	.00	--											
4 Treatment v. Control Group	-.26*	.00	-.27*	--										
5 Psychological Flexibility (AAQ_II)	-.19	.11	.10	.15	--									
6 Quality of Life (BMSLSS)	-.05	-.15	-.03	-.02	-.28*	--								
7 Achievement (WJ3)	-.24	.13	.35**	.19	-.07	.24	--							
8 Behavior Symptoms (BSI)	-.01	.07	-.29*	.07	-.03	-.04	.10	--						
9 Teacher Student	.17	-.11	-.20	-.13	-.14	.40**	.03	.00	--					

Relationships (SEI)														
10	Relevance of work (SEI)	.37**	-.28*	-.05	-.31**	.01	.14	-.07	-.11	.64**	--			
11	Peer Support (SEI)	.15	.01	-.14	-.17	-.35**	.48**	.07	.08	.27*	.24*	--		
12	Future Aspirations (SEI)	.27*	-.08	-.02	-.22*	-.04	.14	.15	.02	.44**	.59**	.43**	--	
13	Family Support (SEI)	.10	-.08	-.07	-.19	-.12	.22*	.22	-.21*	.27*	.47**	.31**	.53**	--
14	External Motivation (SEI)	.12	-.04	.14	.00	.16	.04	.14	-.12	.07	.07	-.20	-.07	-.17

Note: AAQ-2 = Acceptance and Action Questionnaire-2; BMSLSS = Brief Multidimensional Students' Life Satisfaction

Questionnaire; WJ3 = Woodcock Johnson III: Test of Achievement; BSI = Behavioral Symptoms Index; SEI = Student Engagement

Instrument; * $p < .05$; ** $p < .01$

Table 4

Multiple Linear Regression Analysis Summary for Ethnicity, Income, SPED labels and Treatment & Control Predicting Psychological Flexibility.

Variables	<i>B</i>	<i>SEB</i>	β	Sig.	Tolerance	VIF
(Constant)	23.29	10.36	--	--	--	--
Ethnicity	-2.50	2.67	-.13	.35	.79	1.26
Income	1.18	3.07	.05	.70	.84	1.18
SPED Label	3.33	2.31	.19	.16	.92	1.09
Treatment & Control	2.78	2.40	.16	.25	.84	1.19

Note: Adjusted $R^2 = 0.02$; $F(4, 59) = 1.27$, $p = 0.29$; SPED = Special Education

Table 5

Multiple Linear Regression Iterative Analysis Summary for Ethnicity, Income, and SPED labels Predicting Psychological Flexibility.

Variables	<i>B</i>	<i>SEB</i>	β	Sig.	Tolerance	VIF
(Constant)	30.82	8.09	--	--	--	--
Ethnicity	-3.41	2.56	-.18	0.19	.87	1.16
Income	.64	3.04	.03	0.84	.86	1.16
SPED Label	2.57	2.22	.15	0.25	.99	1.01

Note: Adjusted $R^2 = 0.01$; $F(3, 60) = 1.23$, $p = 0.31$; SPED = Special Education

Table 6

Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Quality of Life.

Variables	<i>B</i>	<i>SEB</i>	β	Sig.	Adjusted R^2	Tolerance	VIF
Psychological Flexibility (AAQ-2)	-.18	.08	-.28	.022	.06	1	1

Note: AAQ-2 = Acceptance and Action Questionnaire-2; $F(1, 65) = 5.50, p = .022$

Table 7

Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Behavior Symptoms.

Variables	<i>B</i>	<i>SEB</i>	β	Sig.	Adjusted R^2	Tolerance	VIF
Psychological Flexibility (AAQ-2)	-.04	.17	-.03	.83	-.02	1	1

Note: AAQ-2 = Acceptance and Action Questionnaire-2; $F(1, 61) = 0.046, p = .831$

Table 8

Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Academic Achievement.

Variables	<i>B</i>	<i>SEB</i>	β	Sig.	Adjusted R^2	Tolerance	VIF
Psychological Flexibility (AAQ-2)	-0.14	.3	-0.07	.64	-0.017	1	1

Note: AAQ-2 = Acceptance and Action Questionnaire-2; $F(1, 45) = 0.221, p = .64$

Table 9

Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Peer Support for Learning.

Variables	<i>B</i>	<i>SEB</i>	β	Sig.	Adjusted R^2	Tolerance	VIF
Psychological Flexibility (AAQ-2)	-.13	.04	-.35	.00	.11	1	1

Note: AAQ-2 = Acceptance and Action Questionnaire-2; $F(1, 65) = 9.06, p = .004$

Table 10

Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Teacher Student Relationships.

Variables	<i>B</i>	<i>SEB</i>	β	Sig.	Adjusted R^2	Tolerance	VIF
Psychological Flexibility (AAQ-2)	-.06	.05	-.14	.25	.01	1	1

Note: AAQ-2 = Acceptance and Action Questionnaire-2; $F(1, 65) = 1.33, p = .254$

Table 11

Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Relevance of Work.

Variables	<i>B</i>	<i>SEB</i>	β	Sig.	Adjusted R^2	Tolerance	VIF
Psychological Flexibility (AAQ-2)	.00	.06	.01	.96	-.02	1	1

Note: AAQ-2 = Acceptance and Action Questionnaire-2; $F(1, 65) = 0.002, p = .964$

Table 12

Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Future Aspirations.

Variables	<i>B</i>	<i>SEB</i>	β	Sig.	Adjusted R^2	Tolerance	VIF
Psychological Flexibility (AAQ-2)	-.02	.06	-.04	.74	-.01	1	1

Note: AAQ-2 = Acceptance and Action Questionnaire-2; $F(1, 64) = 0.11, p = .742$

Table 13

Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting Family Support.

Variables	<i>B</i>	<i>SEB</i>	β	Sig.	Adjusted R^2	Tolerance	VIF
Psychological Flexibility (AAQ-2)	-0.03	.03	-.12	.34	-.00	1	1

Note: AAQ-2 = Acceptance and Action Questionnaire-2; $F(1, 66) = 0.939, p = .336$

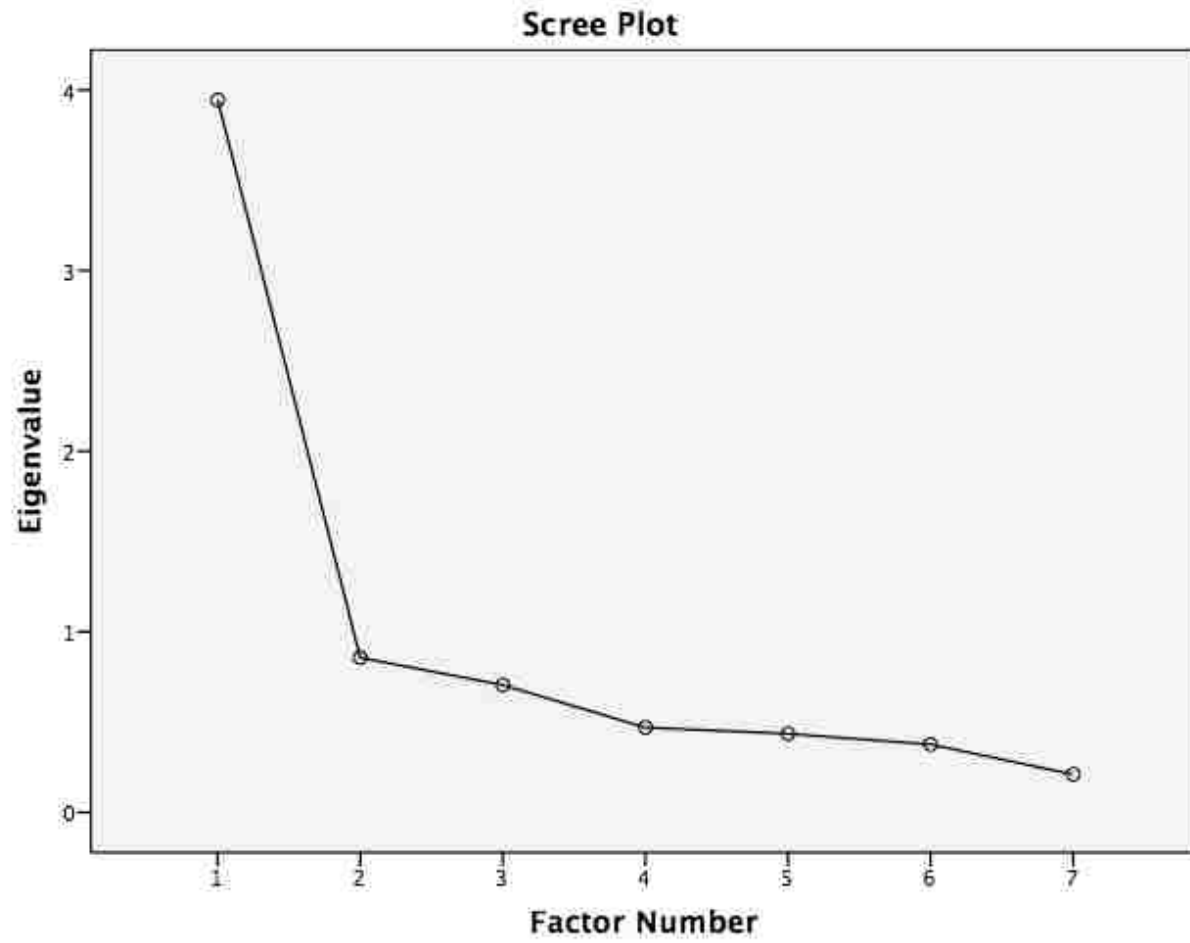
Table 14

Multiple Linear Regression Analysis Summary for Psychological Flexibility Predicting External Motivation.

Variables	<i>B</i>	<i>SEB</i>	β	Sig.	Adjusted R^2	Tolerance	VIF
Psychological Flexibility (AAQ-2)	.02	.02	.16	.19	.01	1	1

Note: AAQ-2 = Acceptance and Action Questionnaire-2; $F(1, 66) = 1.755, p = .19$

Figure 1. Scree plot



Appendix

Acceptance and Action Questionnaire- 2nd Edition (AAQ-II)

Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

1	2	3	4	5	6	7
never	very seldom	seldom	sometimes	frequently	almost	always
true	true	true	true	true	always true	true

1. My painful experiences and memories make it difficult for me to live a life that I would value.	1	2	3	4	5	6	7
2. I'm afraid of my feelings.	1	2	3	4	5	6	7
3. I worry about not being able to control my worries and feelings.	1	2	3	4	5	6	7
4. My painful memories prevent me from having a fulfilling life.	1	2	3	4	5	6	7
5. Emotions cause problems in my life.	1	2	3	4	5	6	7
6. It seems like most people are handling their lives better than I am.	1	2	3	4	5	6	7
7. Worries get in the way of my success.	1	2	3	4	5	6	7

IMAD ZAHEER

CURRENT ADDRESS:

1023 Main Street Apt #3N
Bethlehem, PA 18018
646-643-5222
imadzaheer@gmail.com

PERMANENT ADDRESS:

25-05 85th Street
East Elmhurst, NY 11370
347-848-0456

EDUCATION:

Bachelor of Arts in Psychology: Applied Behavior Analysis (May 2008)
Binghamton University, Binghamton, New York

Masters of Education in School Psychology (August 2013)
Working towards Doctorate in School Psychology (August 2009 to Present,
Expected August 2015)
Lehigh University, Bethlehem, Pennsylvania

RESEARCH EXPERIENCE:

Center for Adolescent Research in Schools (CARS), Lehigh University July 2010-July 2014

Data Coordinator & Mental Health Facilitator on Nationwide Grant Project with Dr. Lee Kern

- Provided direct services and training for school mental health staff members in high school settings in the form of mental health interventions for depression, anxiety, and social skills.
- Provided individual mental health interventions for anger and de-escalation based interventions.
- Facilitated parent group trainings in behavioral management that included creating lectures on behavioral principles and creation and application of behavioral contracts.
- Trained teachers to apply classroom wide behavioral interventions with high school students such as expectations, praise statements, de-escalation, check and connect, and increasing opportunities to respond.
- Created video based training modules that included both role-playing and editing of the videos.
- Administering and interpreting annual assessments for parents, teachers, and students including the following: MASC, BASC-2, RADS, SACA/SCAPI, IRF, IRS, DBD, SIPA, APQ, YRBS, SEI, WASI, and WJ-III.
- Managing large sets of data for one of the five national sites for the CARS grant, including on-going data analysis to inform interventions and progress of the research study.
- Currently working on multiple publications based on the CARS project, focusing on issues of service utilization, quality of life, and student engagement.
- Disseminated research findings from the study at national conferences, including TECBD, APBS, NASP and CEC.
- Manage website for the CARS project, updating with current research and information about the project (www.ies-cars.org).

Center for Promoting Research to Practice, Lehigh University August 2009-June 2010

Part-time research assistant (10 hours a week) for Dr. Edward Shapiro

- Worked on data analysis for multiple projects that involved looking at demographic data to select school districts that would serve as good comparison or control groups as well as assisting in analyzing the results.
- Provided DIBELS evaluations in multiple schools through collaborative efforts with Step-by-Step learning.
- Conducted integrity checks on teacher implementation of parent training sessions for early literacy at Pleasant Valley school district.
- Collaborated on creating reports related to projects being conducted at the center, which involved analyzing data, creating graphs and figures, and general formatting for the reports.

Educational Leadership Research Assistant, Lehigh University

August 2009-August 2013

Part time research assistant for Dr. Perry Zirkel

- Worked on research looking at state-by-state legal requirements for functional behavioral assessments in schools.
- Worked on numerous research projects to provide assistance on data analysis, graphic displays for publications, and literature reviews.
- Consulted for cross discipline research on legal and ethical issues impacting practice of school psychologists.

Educational Leadership Graduate Assistant, Lehigh University

August 2009-June 2010

Part-time graduate assistant (10 hours a week) for Dr. Jill Sperandio

- Assisted in the management of three graduate courses (School Resource Management, School Head Office of International Programs, & Qualitative Research Methods) as a teaching assistant, which included presenting lectures, creating assignments, providing feedback and assistance to students, and conducting online Elluminate lectures for international students.
- Conducted literature reviews for several research projects and assisted in editing manuscripts for publications related to topics such as educational leadership for women and globalization citizenship.
- Assisted in creating conference workshops on promoting global citizenship training with school leaders.

Research Foundation, Binghamton University

March 2008-May-2009

Full time research assistant for Dr. Raymond G. Romanczyk

- Worked in a team of consultants for Broome Development Center in creating a group home by conducting large-scale literature review, writing research reports and summaries, providing empirically based recommendations, and creating training modules and comprehensive curriculum for teaching behavioral strategies to direct care staff.
- Created lecture materials, conducted literature reviews, worked with teachers to successfully implement research based practices in classrooms and attended a conference to promote the center to parents and professionals for the Center for Autism Spectrum Disorder.
- Worked on the Early Intervention Assessment Initiative for the Department of Health, which included editing, and formatting lectures and distributing assessments through large-scale mailing projects to various organizations and agencies.
- Assisted in creating training material for undergraduate tutors by video recording clinical sessions and editing video lectures.
- Presented a poster at the 2008 New York State Applied Behavior Analysis conference describing the final project for the Applied Behavior Analysis class at Binghamton University, which included data from student's successful attempts to implement a self-change project based on a self-administered functional analysis.

Auditory Perception Lab, Binghamton University

January 2007-May 2009

Research Assistant for Dr. Richard E. Pastore

- Presented two research abstracts for undergraduate research fair on the effects of varying duration on backwards recognition masking and differences in auditory looming between static and dynamic tones.
- Worked on data collection and analysis for numerous projects in addition to creating experiments through programs such as Excel using Macro Algorithm, Adobe Audition for creating stimuli, and Matlab for creating experimental conditions.
- Assisted in editing manuscripts for publication as well as editing video and sound samples for various projects which included marking and measuring various acoustic properties.
- Ran subjects for multiple experiments and projects in the lab.

CLINICAL EXPERIENCE:

Centennial School at Lehigh University

School Psychology Intern

August 2013-Present

- Currently working on school-wide consultation team to improve academic and behavioral assessment and interventions, with a specific focus on integrating computerized assessment programs (MAPS, STAR).
- Action research directed towards identifying effective school-wide measures beyond office referrals, including severe incident reports to better guide behavioral planning and interventions.
- Provided direct mental health services including individual therapy for students using methods such as cognitive behavior therapy (CBT), motivational interviewing, and acceptance and commitment therapy as well as group based classroom-based cognitive behavior therapy group for middle and elementary age students.
- Conducted several functional behavioral assessments in conjunction with school teams and families to provide individualized interventions.
- Conducted comprehensive academic assessments and corresponding interventions in consultation with teachers to address academic concerns for elementary aged students.
- Successfully submitted a grant for a research study exploring technology integration to enhance instruction for students with emotional and behavioral problems.
- In-service training for school staff on implementing school-based cognitive behavior therapy and conducting systematic behavioral assessments and math curriculum based assessments.

Fountain Hill Elementary

School Psychology Intern

August 2012-June 2013

- Worked 2 days a week as a practicum student in the elementary school setting, providing full range of services including assessments, interventions, and program planning.
- Conducted full psychoeducational evaluations for special education placement as well as follow up neuropsychological assessments based on student needs.
- Conducted full behavioral and academic assessments and consultation with school based teams to provide positive behavior intervention plans for classroom settings.
- Led in-service for teachers on how to conduct functional behavioral assessments as well as follow-up live supervision training through consultation
- Provided direct services for mental health concerns, including one-on-one therapy for anger management and self-management skills.

Good Shepherd Rehabilitation Clinic

Pediatric Psychology Intern

August 2011-May 2013

- Provided neuropsychological testing and assessments for children with traumatic brain injuries and various other medical conditions.
- Worked as hospital's school liaison, working closely with both hospital and school teams to coordinate services and assessments, especially academic services during hospital stays for school-aged children.
- Provided direct services, including trauma-based cognitive behavior therapy, suicide prevention, and functional behavioral assessments related to behavioral health concerns, problem behaviors, and feeding disorders.

Raub Middle School

School Psychology Intern

August 2011-June 2012

- Worked 2 days a week as a practicum student in the middle school setting, providing full range of services including assessments, interventions, and program planning.
- Conducted several full special education evaluations and provided on-going supports for implementing special education plans.
- Provided direct mental health services, including one-to-one therapy, group cognitive behavior therapy, and bully/suicide prevention programs.
- Provided behavioral consultation for classroom teachers for both academic and behavioral concerns, which included formative academic assessments such as curriculum-based assessments and behavioral assessments such as functional behavioral assessments.

Institute of Child Development, Binghamton University

Full time staff in the Children's Unit of Treatment and Evaluation

July 2007-August 2007

- Extensive experience in direct-care services involving conducting behavioral interventions and implementing educational goals for students with Autism, learning disabilities, and emotional problems as an assistant to a special education teacher.
- Provided over 350 hours of one-on-one instruction in the classroom between undergraduate tutor and full time staff position.

AWARDS & SCHOLARSHIPS RECEIVED:

Core Competency Grant: Prevention Science and Participatory Action Research in Local Communities (April 2013 to October 2014)

- The core competency grant is a competitive grant offered through Lehigh University for student led educational programs, offering up to \$2,500. The Core Competencies Grant was established to encourage faculty and staff to develop programs that will enrich and expand student-learning opportunities consistent with the goal of the University's Strategic Plan to promote student success.
- This grant was awarded to me and my co-author, Seth Laracy, to organize an event on applying prevention science principles in the context of participatory action research to impact change within local communities. To accomplish this goal, we invited national speakers as well as local community members and stakeholders to generate ideas and collaboratively work towards plans to change the local communities in which the participants are situated.

Diversity Scholarship from Student Affiliates of School Psychology (SASP; 2011)

- This scholarship is awarded to support students from under-represented cultural backgrounds as they endeavor to become a part of the inspiring profession of School Psychology. The scholarship is given to students with good academic standing and based on a participation in events and research related to increasing and celebrating diversity in school psychology.

College of Education Student Leadership and Service Award (Awarded 2011; Nominated 2014)

- The College of Education Graduate Student Leadership and Service Award recognizes students who exhibit leadership through service as a means of improving the quality of graduate student life in the College of Education and making the graduate experience better for all.

Thomas/Brucker Endowed Minority Doctoral Scholarship (2010)

- This scholarship is awarded to students who exhibited academic excellence in his or her undergraduate graduate degree, have a minority or international background and have participated in educational experiences that showcase high levels of achievement. Special consideration is given to individuals from diverse backgrounds that have had experience working overseas or in low socioeconomic environments.

PROFESSIONAL POSITIONS

Journal of Positive Behavioral Interventions (JPBI) November 2012-Present

Lead Editorial Assistant for Dr. Lee Kern (Co-editor of JPBI)

- On-going correspondence with editors, associate editors, reviewers and authors towards facilitation publication process.
- On-going management of submitted publications for authors and reviewers to complete the review process.
- Assign articles to be sent for print publication on a quarterly basis.
- Assisted in selection of new editorial board.
- Attend training to learn about the publication process and navigate the journal's website for online submissions.

PUBLICATIONS & PROJECTS:

Zaheer, I. & Zirkel, P.A. (2014). The Legal Content of School Psychology Journals: A Systematic Survey. *Psychology in the Schools, online first.*

Kern, L., Custer, B. & Zaheer, I, (In-Press). Classroom-based services for adolescents with mental health

needs. In *School Mental Health Services for Adolescents*.

Zaheer, I. (2013). *Behavioral ecological model: Personal Communication*. Retrieved from http://www.cbeachsdusu.com/index.php?option=com_content&view=article&id=100&Itemid=556

Zaheer, I. & Gormley, M. (Under Review). Predictors of school absences in a sample of children with chronic illnesses.

Zaheer, I. & Evans, S.W., George, M., & Kern, L. (In-progress). Service use among adolescents with emotional and behavioral problems.

Zaheer, I., Gage, N. & Cloth, A. (In-Progress). Relationship between student engagement and academic, social and behavioral outcomes for adolescents with emotional and behavioral problems.

PROFESSIONAL PRESENTATIONS:

Devdas, L. & Zaheer, I. (2015). Voices of international students: Challenges and opportunities in the U.S. educational system. National Multicultural Conference and Summit. Atlanta, GA.

Zaheer, I. & Evans, S.W., George, M., & Kern, L. (2014). Service use among adolescents with EBD. Annual Convention of Council for Exceptional Children. Philadelphia, PA.

State, T., Zaheer, I. & Kern, L. (2014). Life satisfaction reports for high school students with EBD: Implication for practice. 11th International Conference of Positive Behavior Support. Chicago, IL.

Zaheer, I. & Kern, L. (2014). Student engagement and risk taking behavior. Annual Convention of National Association of School Psychologist. Washington, DC.

Zaheer, I. & Evans, S.W., George, M., & Kern, L. (2014). Service use among adolescents with EBD. Annual Convention of National Association of School Psychologist. Washington, DC.

Zaheer, I., Barnabas, E.R. & Barnabas, S.G. (2012, May). *Therapeutic response to children and families following traumatic injury*. Presented at 17th Annual Linking Forces Conference, Miami, FL.

Zaheer, I., Barnabas, E.R. & Barnabas, S.G. (2012, October). *Conjoint pediatric health consultation: Partnering to promote child and family health following pediatric injury*. Presented at 2012 Annual Association of School Psychologist in Pennsylvania Conference, State College, PA.

Zaheer, I., Wachsmuth, S., Wier, J. & Kern, L. (2012; October). *Outcomes for students with behavioral problems with and without EBD labels*. Presented at the 36th Annual Teacher Educators for Children with Behavioral Disorders (TECBD), Tempe, AZ.

CLASSES TAUGHT:

Applied Behavior Analysis (Co-taught)	Fall 2014
Assessment of Intelligence (Co-taught)	Spring 2013
Single Subject Design in Research and Clinical Practice (Co-taught)	Spring 2012

STUDENT ORGANIZATIONS:

Lehigh University Discipline Committee Officer September 2009-Present

- Served as the graduate student judge on the discipline committee, which included hearing and judging cases and providing disciplinary actions for students.

School Psychology Club at Lehigh University (SASP)

Treasurer September 2010-August 2013

- Handled the financial responsibilities for the School Psychology Club such as reimbursements, getting clearances for speakers, and providing budget updates for the graduate student senate.

- Updated club documents and provided documents for club activities to the graduate student senate.
Founder and president September 2009-August 2010
 - Started the school psychology club at Lehigh University by petitioning for student and faculty support, setting up meetings, providing the university with documentation for new club and successfully proposing the creation of the club to Lehigh University.
 - Organized and held multiple events including bringing in guest speakers, community charity events such as walk for autism and clothing drives, and welcoming events for incoming students.
 - Organized trips to local conferences such as the annual conference through “Association of School Psychologist in Pennsylvania.”
- Graduate Student Senate Representative at Lehigh University** September 2009-May 2010
- Represented the School Psychology department by attending bi-weekly meeting, voting on the behalf of school psychology students, and disseminating information to the department based on the meetings.
- Educational Policy Committee member at Lehigh University** September 2009-May 2010
- Represented the graduated student body by attending bi-weekly meetings to discuss and vote on academic issues for undergraduates such as class scheduling, cross department collaborations and design of university wide initiatives to improve research at Lehigh University.
- Muslim Student Association, Binghamton University** September 2007-May 2008
- Treasurer
- Handled all the financial responsibilities of the organization, including recruiting and paying speakers for banquets.
 - Attended treasurer trainings and monthly meetings for updates of our organizations progress.
 - Proposed and secured a \$600 increase in the budget for the Muslim Student Association for the following year.
- Handball Club, Binghamton University** August 2005-May2006
- Co-President
- Organized weekly practices, tournaments, and events as well as provided lessons to beginners.
-

PROFESSIONAL MEMBERSHIP: American Psychological Association, Association of Contextual Behavioral Science, Association of Positive Behavior Supports, Council for Exceptional Children, National Association of School Psychologists, New York Association of Behavior Analysis, Student Association of School Psychologist