Resilience in Physically Maltreated Adolescents: Interpersonally Related Protective Factors and Gender Differences

by Deborah Morgan Roberts

B.S. in Psychology, May 2007, Wofford College
M.S. in Counseling Psychology, May 2009, University of Kentucky

A Dissertation submitted to

The Faculty of
the Graduate School of Education and Human Development
of The George Washington University
in partial fulfillment of the requirements
for the degree of Doctor of Philosophy

May 21, 2017

Dissertation directed by

Sara Cho Kim
Assistant Professor of Counseling

The Graduate School of Education and Human Development of The George Washington University certifies that Deborah Morgan Roberts has passed the Final Examination for the degree of Doctor of Philosophy as of March 15, 2017. This is the final and approved form of the dissertation.

Resilience in Physically Maltreated Adolescents:
Interpersonally Related Protective Factors and Gender Differences

Deborah Morgan Roberts

Dissertation Research Committee:

Sara Cho Kim, Assistant Professor of Counseling, Dissertation Director

William R. Dardick, Assistant Professor of Educational Research, Committee Member

Richard P. Lanthier, Associate Professor of Human Development, Committee Member

Acknowledgements

The author wishes to thank the following committee members, examiners, mentors, family member, and other loved ones for their expertise, feedback, and support:

Dr. Sara Cho Kim, for helping me to clarify my research question and focus and feedback throughout the years. Dr. William Dardick for his expertise and assistance ensuring the dissertation was methodologically sound. He taught me patience with dataset, confidence in my ability to run such complex analyses, and most importantly, guidance on the data analysis techniques. Dr. Richard Lanthier for valuable feedback and support. My examiners, Dr. Hergenrather, Dr. France, and Dr. Noël, who provided insightful feedback, taught me to think more abstractly, shared their diverse expertise on the subject, and provided support in the process. An additional thank you to Dr. Noël for her continued clinical support and guidance over the years and as a previous supervisor. Also, to all of the professors and mentors (Dr. Rebecca Dedmond, Dr. Monica Megivern, Dr. Sylvia Marotta, and Dr. Chris Erickson, to name a few) that I've had over the years that have helped me grow as a counselor. I know I have grown professionally and personally throughout this process.

I would like to express my gratitude to those in my personal life, for this would not have been possible without their endless support and patience. To my parents, they have been a constant support throughout my life. Without them, I would not have been able to be half as successful professionally nor personally. They have taught me the empathy, compassion, and gave me confidence to fulfill my passion. To my sister and extended family members, I'm forever grateful of your encouragement, support, and

confidence in me throughout the process. To my friends and other loved ones, you have been selfless throughout this process, encouraging, spent countless hours listening to me, and the necessary comic relief. Thank you for having faith and confidence in me especially when I needed it most, and calmed me during my times of occasional doubts. To the dissertation process, for teaching me patience and confidence, and in turn helped build my own personal resilience.

Abstract of Dissertation

Resilience in Physically Maltreated Adolescents:
Interpersonally Related Protective Factors and Gender Differences

Physical maltreatment places adolescents at risk for negative behavioral and emotional problems. Resilience focuses on the processes that allow these adolescents to cope following the risk and minimize the potential negative outcomes. Parental and peer support were expected to protect against physical maltreatment in adolescents as support by existing empirical evidence in the adolescence and maltreatment literature. Further, these chosen interpersonal protective factors were expected to be more effective in reducing negative outcomes in females than males as current literature suggests females are more interpersonally focused. Secondary data analysis was conducted on data from the National Survey of Child and Adolescent Well-being (NSCAW) national longitudinal dataset. Participants in the current study included 374 physically maltreated adolescents, aged 11 to 17.5 years old (M*age* = 13.68, *SD* = 1.85). The sample included 227 females and 147 males. Foster care was exclusionary. Structural equation techniques including model comparison, mediation analysis, and gender code analysis were conducted to study the research hypotheses. Parental and peer support protected against behavioral and emotional problems in physically maltreated adolescents. Peer support had a greater impact on reducing emotional and overall (i.e. behavioral and emotional problems combined). Parental support was more protective than peer support against behavioral problems. No significant differences were found between the dual domain model (i.e. measuring behavioral and emotional problems separately) and the overall model (i.e. the combination of the two domains). Females were more likely to endorse behavioral and emotional problems. Both structural models (i.e. dual domain and overall) consisting of

the interpersonal factors of parental and peer support exhibited better fit in females than males. Mediation analysis was not significant for peer support. Maltreatment was not significantly associated with peer support. A partial mediation effect was found for parental support. Clinical implications include the promotion of positive peer interactions through school programs and counseling techniques, and increasing use of peer support groups. Clinical and school counselors would benefit from the development of programs and interventions focused on teaching how to provide positive parental support to minimize behavioral issues and effectively spend time with adolescents. Additional theoretical implications and limitations of the study are identified.

Table of Contents

Acknowledgements……...iv

Abstract……..…….v

List of Figures..... xix

List of Tables…….……...……..x

Chapter 1: Introduction 1

Purpose and Research Questions 3

Statement of Potential Significance..... 4

Adolescent Developmental Period..... 8

Protective Factors 10

Gender differences..... 13

Chapter 2: Literature Review..... 18

Resilience Theory..... 21

Requirements for resilience. 23

Resilience process..... 24

History..... 32

Conceptual origins and key researchers..... 33

Seminal studies. 34

History of the definition of resilience. 36

Relevant Theories..... 37

Indivisible self..... 38

Ecological-transactional theory. 40

Summary. 43

Developmental psychopathology theory. 47

Importance of studying adolescence. 49

Summary. 50

Risk Factors 51

Maltreatment. 51

Prevalence of maltreatment. 52

Effects of maltreatment. 53

Rationale for type of maltreatment. 55

Rationale for foster care exclusion. 56

Summary. 57

Measurement of Resilience 57

Resilience level. 58

Domain-specific resilience vs. overall resilience. 59

Summary. 62

Resilience Domains 62

Emotional resilience. 63

Behavioral resilience. 67

Summary. 73

Protective Factors 73

Parental support. 74

Peer support. 78

Summary. 82

Gender **82**

Gender differences in resilience. 83

Gender differences in risks. 84

Gender differences in behavioral and emotional functioning. 84

Gender differences in protective factors. 88

Summary. 90

Research Question **92**

Chapter 3 ..... **96**

Methods **96**

Data Source **96**

Participants **98**

Measures **98**

Risk Factors 98

Protective Factors 98

Outcomes 102

Selection Variables 105

Data Analysis **105**

Analytic Approach 105

Data screening. 108

Identification 109

Sample size and power 109

Assumption of normality. 110

Model specification. 111

Covariances. 113

Assessing model fit and estimation. 114

Missing data. 115

Reverse causal effects. 116

Hypothesis Testing 116

Chapter 4: Results 120

Description of Sample 120

Descriptions of Variables 122

Data Screening 133

Measurement Model 138

Exploratory Factor Analysis 146

Structural Models. 154

Mediation Model 161

Gender differences 165

Chapter 5: Discussion 167

Review and Discussion of Key Findings 171

Implications 190

Limitations 195

Future Research 198

Conclusions 202

References 204

List of Figures

Figure 1. Initial Hypothesized Model 1…….…….…….105

Figure 2. Initial Hypothesized Model 2…….…….…….105

Figure 3. Respecified Measurement Model 1……..140

Figure 4. Respecified Measurement Model 2……..143

Figure 5. Exploratory Measurement Model 1..……..……..151

Figure 6. Exploratory Measurement Model 2……..152

Figure 7. Structural Model 1. ……..153

Figure 8. Structural Model 1 with Correlation between Latent Endogenous Variables……..154

Figure 9. Structural Model 2.…….……..154

Figure 10. Model 1 with Gender Differences…….…….165

Figure 11. Model 2 with Gender Differences……..165

List of Tables

Table 1. Sample Characteristics……....…99

Table 2. Psychometric Properties of Initial Indicator Variables……..107

Table 3. Correlations of Indicator Variables……120

Table 4. Correlation of Latent Variables Model 1……...…121

Table 5. Correlation of Latent Variables Model 2……...121

Table 6. Skew and Kurtosis…….125

Table 7. Psychometric Properties of Variables in Exploratory Model……149

Table 8. Fit Statistics for Structural Models……155

Table 9. Structural Model 1 Factor Loadings……..157

Table 10. Structural Model 2 Factor Loadings……159

Table 11. Mediational Effect Sizes…….…….163

Table 12. Characteristics of the Sample Divided by Gender ……..….252

Table 13. Psychometric Properties of Variables for Initial Models Separated by Gender……...…….…….253

Table 14. Psychometric Properties of Variables for Final Models Separated by Gender……...…….…….....…254

Table 15. Respecified Model 1 Factor Loadings…….....……...255

Table 16. Respecified Model 2 Factor Loadings…….……256

Chapter 1: Introduction

Overview

Physical maltreatment has the potential to have long-lasting damaging effects on its victims. Physical maltreatment places adolescents at risk for emotional and behavioral problems (i.e. depression, anxiety, childhood behavioral disorders). However, not all adolescent victims exhibit these negative outcomes. Some victims develop successfully and show competency in developmentally appropriate domains (i.e. emotional and behavioral outcomes). These individuals are exhibiting characteristics of resilience. This study examined emotional and behavioral resilience in physically maltreated adolescents and the factors that may protect female adolescents. Structural analysis techniques, including mediation analysis and group code analysis to examine gender differences, were chosen to study the effectiveness of parental and peer support as protective factors for resilience in physically maltreated adolescents.

Statement of Problem

In the U.S., 3.4 million youth are referred to child protective services (CPS) for abuse and neglect (Center for Disease Control [CDC], 2013). Approximately 18% are victims of physical maltreatment (CDC, 2013). Prevalence rates may be higher as physical abuse is often underreported (Tajima, 2010). Youth maltreatment has been determined a “national emergency” by the US Advisory Board on Child Abuse and Neglect (Henry, 2001). The CDC estimates the total lifetime economic burden caused by new cases of youth maltreatment in the United States is approximately $124 billion (CDC, 2013).

Physical maltreatment places adolescents at risk for negative impacts on development. The potential adverse effects of maltreatment on development are well documented and substantial (Anderson & Bang, 2012; DuMont, Widom, & Czaja, 2007; Gewirtz & Edleson, 2007; Jain, Buka, Subramanian, & Molnar, 2012; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009; Marsh, 2009; O'Donnell, Schwab-Stone, & Muyeed, 2002). Potential risks include emotional and behavioral problems (Anderson & Bang, 2012; DuMont, Widom, & Czaja, 2007; Gewirtz & Edleson, 2007; Jain, Buka, Subramanian, & Molnar, 2012; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009; Marsh, 2009; O'Donnell, Schwab-Stone, & Muyeed, 2002). Specifically, adolescents may exhibit aggressive behaviors or fearful and inhibited behaviors following victimization (Gewirtz & Edleson, 2007; Marsh, 2009; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009; O'Donnell, Schwab-Stone, & Muyeed, 2002). Higher anxiety levels, depression, and conduct problems are often found in adolescents victimized by physical abuse (Gewirtz & Edleson, 2007; Jain, Buka, Subramanian, & Molnar, 2012; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009; Salami, 2010; Ward, Martin, & Distiller, 2007). By age 21, eighty percent of those that reported childhood abuse met criteria for at least one psychological disorder (Silverman, Reinherz, & Giaconia, 1996). In addition, physically maltreated adolescents are less attentive, less engaged in school, have lower grades, receive poorer test scores, report higher absenteeism, and are more likely to drop out of school (Eckenrode, Laird, & Doris, 1993; Egeland, 1991; Gutman, Sameroff, & Cole, 2003).

Although physical maltreatment places adolescents at an increased risk for negative outcomes, many adolescents exhibit typical development following

victimization (Doll & Lyon, 1998; Garmezy, Masten, & Tellegen, 1984; Higgins, 1994; Masten, 2007; Rutter, 1985; Wolin & Wolin, 1993). Those individuals who develop well despite the risks are thought to exhibit resilience. Resilience may be defined as "positive adaptation despite adversity" (Luthar, Sawyer, & Brown, 2006).

Purpose and Research Questions

The present study aimed to better understand of resilience in physically maltreated adolescents. The study aimed to develop a model of good fit to explains resilience in physically maltreated adolescents. It examined the effectiveness of two protective factors (parental support and peer support) on two areas of resilience (emotional and behavioral). Gender differences with the focus on females was also explored in this study. The study was developed based on the expectation that parental and peer support would best account for positive outcomes in the resilience process due to its interpersonal focus and proximity to the individual.

The current study sought to understand if the relationship between specific interpersonal protective factors (i.e. peer support and parental support) and resilience was stronger for females in physically maltreated adolescents. It built on previous resilience research to better understand the processes behind the specific protective factors (i.e. parental support and peer support) and developmentally appropriate outcomes for females by assessing if these specific protective factors contribute differently to resilience for females. The protective factors were chosen through a comprehensive review of the literature. Two models were developed to describe resilience in physically maltreated female adolescents. The two models also examined gender differences with the focus on females.

The following question will be explored:

Question #1

Is the relationship between the protective factors of peer and parental support and resilience in physically maltreated adolescents stronger in females?

Statement of Potential Significance

Despite the growth in research in the field of resilience, a gap in the literature exists in understanding which specific protective factors are most salient in relation to specific risk factors and resilience domains. For example, peer support and parental support are expected to be more salient in resilience of physically maltreated adolescents due to their proximity and relevance to adolescent developmental period. Previous research has identified peer and parental support as potentially effective protective factors. The next step in resilience research is to emphasize context and determine which factors are protective in each context. This current study examined if two empirically supported protective factors in adolescent research literature is protective within the context of physical maltreatment. This current study was also needed to explore if the protective factors were more influential in physically maltreated female adolescents. Research on specific protective factors and resilience provides clarity in the understanding of resilience framework in this population of physically maltreated adolescents.

Studies on gender and resilience in maltreated adolescents are limited. As noted, few have studied gender and resilience in maltreated adolescents. Earlier studies on adolescent development primarily focused on male development. Studies focusing on females' experiences have starting growing only in the past few decades (Galambos &

Leadbetter, 2000). Additionally, the literature is lacking within specific types of maltreatment (i.e. physical maltreatment) when studying gender and resilience in maltreated adolescents.

Additionally, the majority of the resilience literature is based in the fields of psychology, nursing, or psychiatry. The lack of research on resilience in the counseling field specifically is surprising given the potential utility of the framework. Resilience may serve as an important concept to the counseling field as it encourages counselors to place emphasis on strengths and building protective factors. The current resilience framework by Masten (1994, 2007), Luthar (1991, 2000), and Cicchetti (1995, 2006) may benefit counselors working with adolescents. Specifically, focusing on resilience allows counselors to highlight clients' strengths and use it to foster well-being in at-risks adolescents. This promotion of resilience may help adolescents cope when faced with trauma. Thus, given the advantage of utilizing the resilience framework in the counseling field, more research in this field is necessary.

The identification of significant specific protective factors different processes that exist in this type of maltreatment benefits counselors working with trauma in adolescents. One benefit of this knowledge to counselors is in designing and implementing programs or therapeutic strategies based on the protective factors with the most empirical support in physically maltreated female adolescents. Thus, if resilience was shown to contain different processes and degree of importance of protective factors for females, there would implications for counselors working with trauma in adolescents to consider gender differences.

Theoretical Foundation

Resilience framework

The current resilience framework provides the foundation to understand individuals who do not exhibit the expected negative outcomes following risk. This positive psychology approach of resilience moves away from the deficit model to focus on identifying factors that help individuals recover from adversity. Resilience seeks to understand the processes behind individuals who develop successfully despite being labeled at-risk (Masten, 2012). Resilience can be defined as successful adaptation in the face of risks (Garmezy, Masten, & Tellegan, 1984; Masten, 2012).

Resilience is considered a dynamic, multidimensional process (Masten, 2006). Resilience requires two basic criteria to be met: a threat to development and an adequate outcome (Masten, 2007). In terms of the first criteria, a moderate level of risk is necessary to be resilient. The amount of required risk will be discussed in Chapter 2. For example, an adolescent that performs well emotionally and behaviorally, but has no threats to their development is simply an adolescent that has succeeded in normal development, not one that is resilient. Physical maltreatment is categorized as a risk factor in resilience and will be the focus of this current study. Secondly, resilience requires successful adaptation following risk (Luthar, 1993; Masten, 2007). Successful outcomes are to be measured by competence in developmentally appropriate domains. For an individual to be considered resilient, one must exhibit competence in at least one domain of resilience (i.e. emotional or behavioral; Masten, 2007). This study focused on both emotional and behavioral outcomes. Increased emotional and behavioral problems in maltreated adolescents renders these outcomes as developmentally appropriate domains in adolescent resilience (Gewirtz & Edleson, 2007; Jain, Buka, Subramanian, &

Molnar, 2012; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009; Salami, 2010; Ward, Martin, Theron, & Distiller, 2007).

Although the past few decades of research have built a comprehensive theory of resilience, the field continues to lack consensus in clearly defining a framework (Luthar, Sawyer, & Brown, 2006). Gaps still exist in the literature. One gap in the framework is in understanding the processes of protective factors as they relate to various risk factors. Specifically, research is lacking in understanding the specific risk and protective factors that interact together to create resilience in various domains. The interaction between risk factors, protective factors, and successful outcomes may be better understood by considering the theoretical foundation of Cicchetti and Lynch's (1993) ecological-transactional model.

Relevant Theoretical Framework.

The primary theory of this current study is the ecological-transactional model (Cicchetti & Lynch, 1993). The ecological-transactional model provides a theoretical foundation to understand resilience in physically maltreated adolescents. The model integrates Bronfenbrenner's (1979) ecological systems theory focusing on systems and environmental influences, and Sameroff's (1975) transactional model explaining the interaction among these influences. The ecological-transactional model was developed based on the basic concepts of the two theories. The supplemental theory of Myers and Sweeney's (2004) indivisible self wellness model incorporates resilience framework into the counseling profession and developmental models provide the additional background of adolescent development.

The ecological-transactional theory is divided into four systems that affect the individual: microsystem, exosystem, macrosystem, and ontogenic development. The microsystem includes the immediate setting in which the child lives. This includes the protective factors of peer and parental support. The exosystem focuses on the environment of the individual including their school, and community. The macrosystem involves cultural beliefs. The ontogenic development refers to individual characteristics and his or her developmental adaptation (Cicchetti & Lynch, 1993).

The transactional addition to the model refers to the interaction among systems. According to this perspective, the systems include complex interactions that affect each other (Cicchetti & Lynch, 1993). The transactional theory suggests the most proximal factors have the most effect on the individual. Because peer and parental support are in the proximal system of the microsystem, it can be suggested those protective factors play a significant role in resilience. The strength of protective factors in resilience is impacted by the relevance to the developmental period (i.e. peer and parental support must be salient to developmental period to effectively moderate against risk).

Adolescent Developmental Period.

In addition to the ecological-transactional model, the context and unique characteristics of adolescent development is necessary in understanding resilience in physically maltreated adolescents. Adolescence is the most physically victimized age group in the United States (Christiansen & Evans, 2005). In addition, this age group is particularly vulnerable to the effects of physical abuse due to the unique challenges of this developmental time period.

Adolescence can be defined as the age after puberty prior to reaching adulthood or chronologically by the ages of 10 to 18 years old (American Psychological Association, 2002). Adolescence in this current studied was defined as 11 to 17.5 years old due to several measurements in the dataset starting at that age, and the consideration that there is no definite age period of adolescence (American Psychological Association, 2013). It is a period of rapid change and unique challenges. Increased peer influence and the need for autonomy occurs in adolescence. Cognitive functioning increases during this time allowing for less hypothetical thinking and higher-level processing of the trauma. Additionally, adolescents during this time may become egocentric and believe they have all the answers due to the improved cognitive functioning. This may push them away from parents and closer to peers (Howell & Miller-Gragg, 2014).

One developmental challenge that occurs during adolescence is the process of individualization and increased independence (Erikson, 1968). The process of individualization results in adolescents' quest to develop their own identity. Identity formation was defined by Erikson (1968) as the key developmental task during this time period. Thus, adolescents are faced with considerable pressures as they attempt to develop their identity. As a result of the pressures and challenges, emotional and behavioral problems significantly increase in adolescence (Kazdin, 2000). However, minimizing emotional and behavioral problems adolescent development is important for the successful transition into adulthood. Risk-taking behavior may make it difficult for adolescents to transition to successful adults. Youth with conduct problems are at an increased risk for criminal activity, family instability, poor educational outcomes, poor health outcomes, antisocial personality disorder, and early pregnancy (Salami, 2010).

Emotional problems such as depression may cause weight or appetite changes, changes in sleep, psychomotor changes, loss of energy, worthlessness or guilt, concentration problems or indecisiveness, and thoughts of death or suicide that may impair functioning and negatively impact development (American Psychological Association [APA], 2013). Adolescent victims of physical maltreatment are at an even higher risk than non-maltreated adolescents for negative emotional and behavioral outcomes (Carbonell, Reinherz, & Giaconia, 1998; Cicchetti & Toth, 1995; Jaffee & Gallop, 2007; Werner & Smith, 1992).

Given the unique risks and challenges of the adolescent developmental period, it is necessary to understand resilience within the context of development. Masten's (2012) developmental psychopathology theory provides a framework for understanding human development and other developmental factors in physically maltreated adolescents. The theory is an integrative model of developmental theories to understand problems in adaptation that may occur in physically maltreated adolescents. This theory will be a secondary theory to understand the context of resilience within development. The ecological-transactional model and the context of adolescent development provide a basis for establishing theoretically salient protective factors in physically maltreated adolescents.

Protective Factors.

Negative effects of physical maltreatment in adolescents may be minimized through protective factors. Protective factors are defined as processes that interact with risk factors to moderate adverse effects to allow for successful development (Kolar, 2011). Protective factors exist in all of the systems of the ecological-transactional model.

The present study focuses on protective factors that exist in the microsystem. The protective factors of parental and peer support were chosen for this study based on the ecological-transactional theory suggestion that proximal protective factors are the most influential. Additionally, the specific microsystem factors were selected based on empirical support and the feasibility of counselors to utilize these factors to promote resilience, as well as the hypothesized salience to females. Though these protective factors are not the only factors that have been shown to produce resilience, they will be the focus of the present study based on relevance to the field. Previous research has shown strong support for these protective factors in maltreated adolescents (Anderson & Bang, 2012; Arbona & Power, 2003; Asgeirsdottir, Gudjonsson, Sigurdsson, and Sigfusdottir, 2010; Bolger, Patterson, & Kupersmidt, 1998; Christiansen & Evans, 2005; Crosnoe, & Elder Jr., 2004; DuMont, Widom, & Czaja, 2007; Flynn, Ghazal, Legault, Vandermeulen, & Petrick, 2003; Gewirtz & Edleson, 2007; Holister-Wagner, Reyes & Elias, 2011; Jain, Buka, Subramanian, & Molnar, 2012; Kim & Cicchetti, 2004; Kim & Cicchetti, 2006; Marsh, 2009; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009; O'Donnell, Schwab-Stone, & Muyeed, 2002; Salami, 2010; Sun & Stewart, 2007; Tiet, Huizinga, & Byrnes, 2010; Ward, Martin, & Distiller, 2007).

Research provides ample evidence of parental support as a protective factor. It is hypothesized parents who are supportive create a safe and secure environment that allows one to be successful (Scaramella, Conger, & Simmons, 1999). Parents have potential to provide protection to the adolescent while they discover their identity. Support for positive parenting as an effective protective factor among physically maltreated children has been found in a longitudinal study of children (Kim-Spoon, Haskett, Longo & Nice,

2012). Additionally, is has been shown to be as associated with well-being in a sample of physically maltreated children (Sabourin, Ward, & Haskett, 2008). Parental support has been found to promote social and academic resilience as well as reduce children's aggression (Haskett, Allaire, Kreig, & Hart, 2008; Rajendran & Videka, 2006; Wind & Silvern, 1994).

Peer support has also been shown in the literature to be an effective protective factor for resilience in physically maltreated adolescents (Crosnoe, & Elder Jr., 2004; Jain, Buka, Subramanian, & Molnar, 2012; Marsh, 2009; O'Donnell, Schwab-Stone, & Muyeed, 2002; Salami, 2010; Sun & Stewart, 2012). Peer relationships have been positively associated with self-esteem among maltreated children (Bolger, Patterson, & Kupersmidt, 1998). Close friendships may result in adolescents evaluating themselves and their worth higher, which in turn may head to better adjustment. Additionally, peers may be a good source of support in a time when adolescents are attempting to become more autonomous. Children with positive peer relationships are found to exhibit fewer externalizing behaviors (Schultz, Tharp-Taylor, Haviland, & Jaycox, 2009). Tajima, Herrenkohl, Moylan, and Derr (2011) provided evidence in support of peer relationships as a protective factor against depression.

Parental support and peer support are expected to protect against the risk factor of physical maltreatment. Empirical support suggests these factors minimize the impact of the risk factor to promote emotional and behavioral resilience. However, more research is necessary on the specific factors to understand the processes in this at-risk population and to understand any gender differences that may exist. The current study aims to examine the relationship between the protective factors if parental support and peer support and

resilience in physically maltreated adolescents. Further, it will examine gender differences. Specifically, it will focus on resilience processes in females.

Gender differences.

Gender is expected to impact the interaction between specific risk factors, protective factors, and resilience domains. Research on gender differences, specifically females, within these particular protective factors and resilience in physically maltreated adolescents is limited. However, studies suggest gender differences in resilience processes do exist (DuMont, Widom, & Czaja, 2007; Hartman, Turner, Daigle, Exum, & Cullen, 2009). Females have been shown to place more importance on interpersonal protective factors (e.g. peer and parental support) and may be more likely to internalize problems. More studies are necessary to examine gender differences in resilience and explore possible differences in the processes and protective factors in females.

Females may be more likely to exhibit resilience. Females have been found to be more likely to exhibit resilience in a study on maltreated children (DuMont, Widom, & Czaja, 2007). Thus, it can be hypothesized that females may exhibit higher levels of resilience than males. However, more studies are necessary to support this finding and understand the rationale for higher likelihood of resilience in females. Establishing any gender differences in specific risks, protective factors, and outcomes is essential to understanding resilience in female youth.

Gender differences in behavioral and emotional functioning.

Studies have shown gender differences with females in behavioral and emotional outcomes (Achenbach, 1979; Jenkins, Goodness, & Buhrmester, 2002; Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993; Nolen-Hoeksema & Girgus, 1994; O'Brien,

Margolin, John, & Krueger, 1991; Reimer, 2002; Wade, Cairney, & Pevalin, 2002). Studies suggest females are less likely to exhibit externalizing behaviors, but more likely to endorse internalizing problems (Achenbach, 1979; Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993; Reimer, 2002). Females have been shown to be less likely to exhibit aggression and engage in delinquent behaviors (O'Brien, Margolin, John, & Krueger, 1991). Females are more likely to endorse internalizing behaviors, such as experiencing depression (Jenkins, Goodness, & Buhrmester, 2002; Nolen-Hoeksema & Girgus, 1994; Wade & Cairney, 2002). It is suggested gender norms and socialization may cause females to internalize their feelings. However, protective factors may minimize negative effects on emotional and behavioral problems to produce resilience.

Gender differences in protective factors.

Gender differences may exist in the importance of specific protective factors in the resilience process. It is suggested females are more affected by interpersonal factors than males. Females may rely on social support and social resources more than boys (Sun & Stewart, 2012). Therefore, socially based protective factors may be stronger for females than males. The protective factors of peer support and parental support are expected to be more significant for females. More research is needed to corroborate these gender differences.

Summary of the Methodology

This current study involved a data analysis on data from the National Survey of Child and Adolescent Well-being (NSCAW). The sample consisted of 374 adolescents, aged 11 to 17.5 years old, whom endorsed experiencing physical maltreatment and were not living in out of home care. Structural equation modeling techniques were employed to

assess two hypothesized models. The first model included four latent variables: two protective factors (parental support and peer support) and two outcome measures (behavioral and emotional problems). The second model comprised of three latent constructs: two protective factors (parental and peer support) and one outcome variable (combination of behavioral and emotional problems to measure overall outcomes). Mediation analysis to assess mediational effects was conducted on both models. Group code analysis was utilized to detect any gender differences.

Limitations

Several limitations in research design exist when utilizing an existing national dataset. The variables are limited to the dataset and exhibited methodological issues in the analyses. The widely-used scales for assessing behavioral and emotional problems, Child Behavioral Checklist (CBCL), Children's Depression Inventory (CDI), and Trauma Symptom Checklist for Children (TSCC), utilized in the analysis exhibited high correlations among the items. Copyright laws limited the ability to view item content and modify the model, possibly hindering model fit. The use of multiple scales as indicator variables for peer support did not appear to adequately measure the construct as shown by the low reliability between the instruments. Missing data excluded the use of teacher-report instruments as potential variables. Parental-report instruments showed lower levels of reliability with self-report instruments demonstrating potential issues with parents' perceptions.

Sample size produced constraints on the study procedures and methodology. Structural equation modeling requires large sample sizes to adequately assess the models. The sample size requirements resulted in the ability to exclude further variables. For

example, multi-victimization of maltreatment (i.e. emotional and physical maltreatment or sexual abuse and physical maltreatment) could not be exclusionary in this study without consequences to the sample size that would interfere with ability to utilize structural equation modeling techniques. Dummy code analysis had to be chosen over group means analysis to prevent sample size reduction.

The sample included substantially more females than males. The large gap in sample size between the genders may limit the comparability between genders and the results of gender differences. The lack of diversity in ethnicity may also limit the findings. Finally, the dataset was a sampling of children and adolescents that had contact with child protective services. The sampling methods may limit the generalizability to all physically maltreated adolescents.

Definition of Key Terms

Physical Maltreatment. Physical maltreatment is defined in this study as any physical act by a caregiver towards the adolescent.

Resilience. This term refers to the ability to bounce back following risk. Throughout this paper, this term will refer to the lack of behavioral and emotional problems following the risk of physical maltreatment.

Parental Support. Parental support is measured by the emotional support and emotional security perceived by the adolescent, closeness of parent to adolescent, and the amount of involvement with the adolescent.

Peer Support. Throughout this paper, peer support is referred to as the quantity and quality of peer relationships.

Behavioral resilience. Behavioral resilience in this study is measured by the lack of behavioral problems and disorders in adolescents. Behavioral problems may include attention problems, aggressive behaviors, and delinquent behaviors with symptoms including aggressiveness, hyperactivity, noncompliance, and undercontrolled behaviors.

Emotional resilience. Emotional resilience in this paper is determined by the lack of emotional problems and disorders in adolescents. Emotional problems may include withdrawn behaviors, anxiety, depression, and trauma symptoms.

Chapter 2: Literature Review

Throughout development, individuals may be exposed to stressful or adverse events. Adverse events place individuals at risk for negative outcomes and impacts development. Researchers have long studied negative effects of high-risk environments (Ai & Park, 2005; Garmezy & Rutter, 1983; Larsen, 1999; Seligman & Csikszentmihalyi, 2000). Over four decades of research exist on the high-risk environment of maltreated children and adolescents (Veltman & Browne, 2001). However, many individuals who experience such environments or events continue to live normal and productive lives. As a result, attention has shifted from deficit-based models to understanding factors that minimize negative outcomes among individuals faced with at-risk environments (Rutter, 1987). Resilience theory addresses this disparity (Doll & Lyon, 1998; Garmezy, Masten, & Tellegen, 1984; Rutter, 1985). According to Masten (2012), resilience can be defined as the ability to adapt and cope when faced with stress or adversity. In studies with strict criteria for measurement of resilience outcomes, 12 to 22% of maltreated children demonstrated resilience (Cicchetti & Rogosch, 1997; Cicchetti, Rogosch, Lynch, & Holt, 1993).

Resilience is a complex process that takes into account risk factors, protective factors, and other emotional or psychological outcomes (Frasier, 2004; Luthar, & Barkin, 2012; Masten, 2012). Resilience in adolescence is an especially complicated process; in part because of the unique risk and salient protective factors of this developmental stage, and heightened risk of negative behavioral and emotional outcomes. The increased risks in adolescence result from vulnerabilities including rapid changes, need for autonomy, and peer influences (Ahern, Ark, & Byers, 2008; Kazdin, 2000).

The rise in popularity of positive psychology, and the shift in focus to a strengths-based model of well-being has drawn more attention to the promotion of resilience in youth. Positive psychology offers a different perspective that fills some of the gaps and shortcomings of traditional deficit-focused models. Even though important information has been derived from a deficit-focused approach, it has the drawback of producing negative assumptions. Studying only risks and poor outcomes is a one-sided view of the lives of high-risk individuals. Many are successful in adapting to stressful or negative environments despite or as a result of overcoming difficult physical and emotional challenges. The potential of categorizing students in deficit-focused models may result in negative effects including lowering expectations of high-risk students and potentially resulting in confirmation biases (i.e. gathering any new information regarding students' performance as confirmation of their stereotype or existing beliefs; Soodak & Podell, 1994). Thus, this traditional approach fails to incorporate understanding of adolescents that are capable of successful development following risk. Instead, attention should focus on understanding how maltreated adolescents can adapt successfully. By looking at strengths, it can help adolescents use their assets and build resources to cope with maltreatment. Promotion of resilience is capable of improving maltreated adolescents' behavioral and emotional functioning.

Further, an understanding of risk factors is limited in its effectiveness, as many risk factors (i.e. physical maltreatment) are difficult to prevent or control (Masten, 1999). It is estimated that 794,000 to 10 million children and adolescents per year are victims of abuse in the United States (U.S. Department of Health and Human Services, 2009). Because our society cannot feasibly control or prevent adolescent maltreatment

completely, it is important to understand how to promote resilience in these adolescents. Therefore, rather than focusing solely on understanding risk factors and how to reduce risk, it is beneficial to attempt to understand protective factors and how individuals may rebound when faced with adverse events (Kim & Cicchetti, 2010).

Although there has been an increase in the study of resilience, much is still unknown regarding the interaction between specific risk and protective factors and resilience domains. For resilience theory to be implemented effectively, more research is necessary. Specifically, clearer definitions and understanding of different variables and resilience processes are essential to create an operational theory of resilience. While a short list of protective factors has been developed, less is known about the process affecting specific risks, protective factors, and resilience domains (Masten, 1999). Protective factors are contextual and situational, and thus, may lead to different outcomes. Protective factors that help one individual in one context may not produce resilience in the same individual with other risk factors or in a different developmental period (Johnson & Wiechelt, 2004; Masten, 1994). For example, peer support may be more significant in the adolescent time period than other developmental time periods due to the elevated influence of peers in this time period (Wolfe & Mash, 2006).

Therefore, resilience theory has been shown to be more complex than originally thought. It is unclear which protective factors interact with physical maltreatment to create emotional and behavioral resilience in adolescents. Researchers have suggested future studies need to examine in greater depth the interaction between maltreatment, specific protective factors, and resilience domains (Earvolino-Ramirez, 2007; Howard, Dryden, & Johnson, 1999; Luthar, Sawyer, & Brown, 2006; Masten, 2007; Masten &

Obradovic, 2006). It is important to understand which protective factors are most salient to unique population of adolescents in the context of physical maltreatment.

Summary.

Resilience is defined as the ability to bounce back following adversity (Masten, 2012). Resilience shifts away from the deficit-focused models to emphasize strengths. According to deficit-focused research, physical maltreatment places adolescents at risk for numerous adverse effects. However, not all victims display these negative outcomes. The field of resilience examines strengths and factors that result in minimizing the potential adverse effects in order to develop successfully. This study aims to add to the resilience framework by examining the interaction between physical maltreatment, protective factors of parental and peer support, and emotional and behavioral resilience domains in physically maltreated adolescents.

Resilience Theory

Resilience attempts to understand the significant factors and processes that will allow individuals to adapt following adversity (Garmezy, 1984; Masten, 2012; Werner, 1996). The framework is not attributable to one researcher, but draws on insights from several. The framework integrates conceptual ideas from four waves of research. The first wave measured resilience through the identification of salient protective factors in the individual, family, and community contexts (Masten, 2007). An attempt was made to create a "short list" of commonly observed factors of resilience (Masten, 1999). The second wave of research focused on understanding processes underlying resilience. Longitudinal studies utilizing a variety of analytic methods were included in this wave. These longitudinal studies conducted during this wave revealed the complexity of

resilience processes into the framework including the lack of stability of resilience and the integration of developmental models into the framework (Masten, 2007). The third wave focused on prevention and intervention strategies (Masten, 2007). The third wave attempted to put the theory into action and began while researchers were still focused on the second wave. Researchers from the third wave were from community, clinical, and educational psychology (Masten, 2007). The research from this wave focused on promoting competence by engaging protective processes through primary prevention efforts (Masten, Burt, & Coatsworth, 2006). The fourth wave integrated the work from previous waves and focused on multilevel dynamics and the many processes that link genes, neurobiological adaptation, brain development, behavior, and context at multiple levels (Masten, 2007). The present study contributes to the research on the role of context and gender differences in resilience in physically maltreated adolescents.

The first wave of work culminated in a "short list" of protective factors. Masten and Coatsworth (1998) developed the most cited list of protective factors based on the most prevalent factors in the literature. According to Masten and Coatsworth, the list includes over twenty protective factors divided into personal, family characteristics, community, and societal categories. The list of protective factors of personal traits was comprised of eight traits including the ability to form and maintain positive peer relationships and positive view of self (i.e. self-confidence, esteem, and efficacy). The list of protective factors in the family characteristics classification include a close relationship to a sensitive and responsive caregiver, an authoritative parenting style (high on warmth, structure/monitoring, and expectations, and parents involved in the child's education). Although the list of common factors still has support, context is necessary for

a better understanding for which protective factors are more salient for different risk factors and populations (Masten 1994, 1999; Masten & Coatsworth, 1998; Rutter, 1985, 1987, 1990; Wang, Haertel, & Walberg, 1994). Specifically, context can help define the most salient protective factors for maltreated adolescents (Masten, 1999; Masten & Coatsworth, 1998). The significance of protective factors in the context of physically maltreated adolescents still needs to be better understood. For example, the proximal factors, such as peer support and parental support, may be more significant for maltreated adolescents than more distal factors.

Requirements for resilience.

The four waves of research shaped the current resilience framework and established certain requirements for the existence of resilience. Two requirements are necessary for the classification of resilience: threat to development and successful adaptation (Garmezy, 1991; Luther & Zigler, 1991; Masten, 2007; Rutter, 1990). The first requirement, a threat to development must exist. By definition, one cannot be considered resilient if he or she has not been exposed to at least a moderate level of risk. The interaction between the risk and protective factors defines resilience (Luthar, Cicchetti, & Becker, 2000). Therefore, removing risk from the equation would change the process that is vital to the theory. For example, an adolescent who performs well socially, behaviorally, and academically, but has no threats that makes them vulnerable to poorer outcomes is simply an adolescent who has succeeded in normal development, not one who is resilient. Thus, according to theory, one may develop successfully without exhibiting resilience (Masten, 2007). Risk factors such as physical maltreatment must be present. Physical maltreatment would be classified as at least moderate level of risk

(Cicchetti & Toth, 1993; Collin-Vezina, Coleman, Milne, Sel, & Daigenault, 2011; Daniel, 2006; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009).

The second requirement of an adequate outcome requires competency in at least one domain of adjustment. Evidence of successful adaptation must exist. The criteria for the level of successful adaptation is debated in the literature. The measurement of successful adaptation will be addressed in more detail later in this chapter. However, the objective is to measure ability to adapt without discounting the potential to exhibit some negative effects from adverse events or trauma with too narrow of a definition (Luthar, 1993). Wright, Fopman-Loy, and Fischer (2005) showed that a narrowly defined measurement of resilience of competence across several domains results in overlooking evidence of resilience in specific domains. Resilience theory does not intend to discount adverse events nor suggest that a person is not negatively affected by the experience. Rather, the theory suggests protective factors may help some individuals use adverse events to grow or at least adapt to the adversity. Thus, too strict of criteria discounts the difficulty to recover or not be affected by the adverse event as individuals are expected to be affected by trauma. The theory examines whether the individual is capable of adapting following trauma with few negative deficits in developmentally appropriate domains, such as behavioral and emotional outcomes (Luthar, 2006).

Resilience process.

The existing research has created the foundational concepts regarding the process of resilience. Resilience theory is a dynamic, multidimensional process. Multiple risk and protective factors interact at various levels to influence competence in the various resilience domains. Protective factors may compensate for the effects of risk to promote

resilience (Masten, 2011). Individuals must possess multiple protective factors to be effective in minimizing negative consequences that result from threats to their development (Masten, 2007). No single protective factor has been shown to account for the majority of the variance in resilience (Vanderbilt-Adriance & Shaw, 2008). Individuals with at least eight protective factors have been shown to be four times more likely to be resilient than those with less than five protective factors in a study of adolescents and young adults (Hartman, Turner, Daigle, Exum, & Cullen, 2009). However, the strength of specific protective factors may change with different contexts (i.e. salience to developmental period, resilience domains, or gender; Cicchetti & Lynch, 1993).

According to a prominent child maltreatment theory, ecological-transactional theory, protective factors should exist across the multiple levels of macrosystem, exosystem, microsystem, and ontogenic development (Cicchetti and Lynch, 1993). The strength of protective factors are theorized to depend on the proximity of the factors to the individual. It is suggested that proximal factors have the most influence on the transactional process. For example, due to the close proximity of peer support and parental support within the microsystem, it could be hypothesized that factors would highly influence the transactional process in resilience. Thus, although multiple protective factors may be necessary, there may also be differences in the salience or effectiveness of protective factors and their ability to moderate the negative effects of physical maltreatment.

Although the ability to identify risk and protective factors is essential to understanding resilience, there is also a need for a greater emphasis on understanding the

interactions and context. A protective factor for some may not be a protective factor for others (Luthar & Zigler, 1991). Context may explain why some specific protective factors are effective in producing resilience for some individuals, but not others. Researchers must attempt to understand how a specific protective factor (i.e. parental support or peer support) interacts with a particular risk factor (i.e. physical maltreatment victimization) in a specific population (i.e. adolescents). Determining the most prominent protective factors and relevant outcomes for a particular developmental period may contribute to the understanding of context in resilience framework. According to Masten (2006), an understanding of why and how specific protective factors interact and vary in protective abilities within specific contexts is critical for the theory to be applied effectively. An overall greater emphasis on context is necessary.

Additional considerations in resilience theory.

In addition to the central tenets, it is important to note several concepts of resilience theory that are relevant to understanding resilience in adolescents victimized by physical maltreatment. The concept of "ordinary magic" refers to the notion that resilience does not require rare qualities, but normal systems that may be in place. Resilience should occur naturally if the "basic human adaptational system" is not impaired. "Ordinary magic" is relevant to resilience in maltreated adolescents as it suggests adolescents can use normal, ordinary systems (Masten, 2001; Masten & Coatsworth, 1998). Developmental cascades is the idea that impairment in development can result in a snowball effect of symptoms (Masten, Roisman, Long, Burt, Obradovic, Riley, Boelcke-Stennes, & Tellegen, 2005). This concept is important to resilience in maltreated adolescents as it exhibits the importance of promoting resilience to minimize

negative outcomes following risk of physical maltreatment. Steeling effect considers the possibility that individuals exhibiting resilience may develop protective factors that could result in personal growth. The steeling effect provides additional evidence for the benefits of studying resilience in maltreated adolescents (Rutter, 2006). The stability of resilience is important to understanding resilience on development as development considers the effect over time. All of these concepts validate the importance of understanding resilience in adolescents victimized by physical maltreatment. The following section will provide further details on both ordinary magic and developmental cascades.

"Ordinary magic"

It was originally believed that youth possessed extraordinary abilities to overcome adverse events. However, Masten (2001) found resilience does not arise from rare qualities, but from the "everyday magic" of ordinary, normative human resources. Masten coined the term "ordinary magic" (Masten, 2001). If systems are protected, then development may occur normally. When "basic human adaptational systems" are impaired, the adolescent's development also becomes impaired (Masten, 2001). It is then that there is a heightened risk for developmental problems. However, given that basic, ordinary systems are involved, resilience should be able to tap into these systems to promote adaptation. This tenet of resilience theory provides an optimistic outlook for high-risk adolescents.

Developmental cascades.

A snowball effect of symptoms contributing to development in those individuals who do not exhibit resilience have been observed in studies (Allen, 1998; Fergusson & Lynskey, 1996; Luthar, 1993; Masten, 2006; Masten, Burt, & Coatsworth, 2006; Masten

& Cicchetti, 2010; Masten, Herbers, Cutuli, & Lafavor, 2008; Masten, Roisman, Long, Burt, Obradovic, Riley, Boelcke-Stennes, & Tellegen, 2005; Obradovic, Burt, & Masten, 2010; Rutter, Kim-Cohen, & Maughan, 2006). Snowball effect is defined as a process of small effects turning into exponentially larger effects as part of a negative cycle of the small effects contributing more symptoms and worsening the effects. Impairment in one domain may affect others resulting in a greater impact on overall development that may be observed throughout life. Problems with development contribute to more symptoms. This phenomenon has been defined as developmental cascades, a central tenet of developmental theories. Negative effects may result from failure to acquire developmental tools necessary for adolescents to be successful later in life. Impairment in one domain of functioning may cause difficulty in developing successfully in other domains (Cicchetti & Toth, 1994).

Developmental cascades account for the bidirectional influences that occur in development. If one has symptoms in one area, then those may spill over to other areas (e.g. behavioral problems may also affect emotional functioning). Thus, issues with functioning may exacerbate other symptoms. Additionally, transactional effects may occur, such as failure in developmental tasks may affect individuals' self-perceptions or others' perceptions. In turn, this may worsen symptoms (Cicchetti & Curtis, 2006; Masten & Cicchetti, 2010; Masten, Roisman, Long, Burt, Obradovic, Riley, Boelcke-Stennes, & Tellegen, 2005).

Therefore, the study of resilience is critical in assisting adolescents in the successful attainment of normal developmental tasks. This helps prevent exacerbation of

negative outcomes later in life as poor adaptation in one domain may make it difficult to succeed in other domains (Masten & Tellegen, 2012).

Steeling effect.

It is debatable whether resilience is the ability to bounce back when faced with adversity or whether it is caused by adversity. In other words, do adverse experiences cause one to develop particular skills and enlist the help of other protective factors, or do those factors exist within the person before the experience? If adverse events cause individuals to develop protective factors, resilience may result in a better level of adaptation and personal growth. Rutter (2006) suggests adverse experiences may strengthen resistance to stress later in life. He defines this potential phenomenon as the "steeling effect." Adversity may result in individuals learning how to utilize existing protective factors (i.e. peer support or parental support) to overcome a traumatic event, which may allow the individuals to grow from the experience (Masten, Obradovic, & Burt, 2006). This concept provides additional support for the importance of studying resilience in adolescents. Promoting resilience in adolescence may have benefits for adult development.

Stability of resilience.

Resilience is a complex, systemic interaction, in which individuals interact with many systems at many levels throughout life impacting their ability to bounce back. Over the course of their lives, individuals face new risks and develop new protective factors and strengths. Development is continuously affected at every level by resilience or by a lack of resilience (Luthar, Cicchetti, & Becker, 2000). Therefore, resilience is not considered to be stable and may change over the course of a person's life. Individuals

may be considered resilient at one time, however, may become less resilient later in development when faced with more risks or when protective factors are removed. Similarly, individuals may lack resilience and experience adverse outcomes at one time, but may become resilient later when they utilize protective factors, such as family or peer support (Gordon & Song, 1994; Luthar, 2000; Masten, 1994; Masten & Coatsworth, 1998; Masten & Garmezy, 1985; Pianta & Walsh, 1998; Wang, Haertel, & Walberg, 1994).

Studies have demonstrated resilience as a discontinuous process. Discontinuous process is defined as one that lacks stability and may change with time. A two-year study was conducted involving children found children who were resilient at Time 1 were not necessarily resilient at Time 2. Of the maltreated children in the study, approximately 25% (n = 74) were labeled resilient during the initial assessment. Only 64% (n = 47) of those were found to be resilient at Time 2 (Jaffee, Caspi, Moffitt, Polo-Tomas, & Taylor, 2007). This highly cited study on the stability of resilience provides evidence for the discontinuity of resilience.

Further, DuMont, Widom, and Czaja (2007) conducted a longer longitudinal study on the consistency of resilience from adolescence to adulthood. Adult survivors of maltreatment (n = 676; M = 29.1) were asked retrospective questions about their adolescent memories of their childhood abuse. The study showed 54% of participants in the maltreated group were found to be resilient at some point in the study. Only 24% of that group showed a pattern of continuous resilience from adolescence to adulthood. The study provides additional support for the discontinuity of resilience.

The importance of the discontinuity of resilience is the ability to create resilience through promotion of protective factors. Resilience may be developed even in individuals exhibiting high-risk behaviors. The ability to change shows the importance of intervening to promote resilience. It also suggests resilience should continue to be promoted throughout development.

Strengths of considering resilience for counselors.

An important advantage of this strength-based model instead of deficit-focused models is the recommendation that counselors emphasize clients' strengths. It provides a framework for assessing clients' strengths and advantages. Adolescents are faced with many challenges. Using a model of resilience can help counselors navigate through risk factors (i.e. when adolescents are victimized by physical violence) to develop protective factors, which can help adolescents cope with trauma and develop successfully (Smith, 2006).

Summary.

The foundational concepts of the current resilience framework stem from four waves of research (Masten, 2007). The first three waves provide a short list of protective factors for the general concept of resilience, resilience processes, and prevention and intervention strategies. The current wave attempts to integrate context into resilience theory.

The four waves provided several main concepts. One, it created the requirements for resilience (Garmezy, 1991; Luther & Zigler, 1991; Masten, 2007; Rutter, 1990). Resilience is the successful adaption following risk. Therefore, it requires a threat to development (i.e. risk factor of physical maltreatment) and successful adaptation to be

considered resilient. Second, it provided understanding of the resilience process. Resilience was found to be a multidimensional process with multiple factors interacting at different levels (Masten, 2007). Third, it found resilience was a result of "basic human adaptational systems" (Masten, 2001). Fourth, it found impairment in development in those that fail to exhibit resilience could result in a snowball effect or an exacerbation of symptoms. This is referred to as developmental cascades (Cicchetti & Toth, 1994). However, the ability to display resilience may result in a "steeling effect" (Rutter, 2006). Fifth, existing research has suggested resilience may not be stable throughout development (Luthar, 2000). These background concepts show the importance of studying resilience. Resilience may cause long-term effects on individuals. It is an optimistic way to look at it. Additionally, resilience may help counselors emphasize their client's strengths and develop protective factors to minimize the potential negative effects of physical maltreatment.

History

The history of resilience research provides the background to understand the origination and progression of the resilience framework. As mentioned previously, the current resilience model is an integration of several notions from four waves of research (Luthar, Sawyer, & Brown, 2006; Masten, 2012). Many of the original central tenets are still relevant today. The current resilience model was a reaction to research that primarily addressed maladaptive behavior and was focused on pathology (Ahern, Ark, & Byers, 2008; Cicchetti, 2004; O'Doughtery, Wright, & Masten, 2005). The main theory of resilience was developed less than 50 years ago by a relatively small number of researchers. Norman Garmezy is commonly known as the pioneer in the field of

resilience. In 1979, while studying child psychopathology he noticed that some children with schizophrenic mothers experienced normal, healthy development while many others did not (Masten, 2007). At that time, he began to study the factors that differentiated those children with normal healthy development. The concept is known today as resilience. Around the same time, Werner and Smith (1982) also began a seminal longitudinal study, which developed into a key historical study of resilience.

Conceptual origins and key researchers.

The conceptual origins of resilience theory can be traced to medicine, clinical and developmental psychology, and education (Cicchetti, 2006; Masten, 2007). As a clinical psychologist, Garmezy set out to understand the etiology of schizophrenia and developed a list of protective factors in resilience as a result of his research. Emmy Werner, another important early researcher in the field, was trained in developmental psychology. She later conducted a seminal study on resilience through researching the outcomes of high-risk children in Kauai. She developed a list of well-cited protective factors (Werner, 1990). Key influences on the conceptual theory, including those of Masten and Luthar, came from clinical psychology programs with a focus on developmental psychology. These researchers had a strong influence, as they developed many of the theoretical concepts, including developmental effects, the resilience process, and the concept of "ordinary magic." Cicchetti (2006), another prominent resilience researcher, particularly in the area of maltreatment research, began his work in the fields of clinical psychology and child development. Other well-known researchers in the resilience field (i.e. Rutter, Kim-Cohen, and Moffitt) were primarily focused on research in the biological sciences

and are credited for much of the theoretical research on genetics and biology (Luthar, 2006).

As noted above, most contributions to the theory have come from the fields of psychiatry, clinical and developmental psychology (Luthar, 2006). Although the counseling profession has not had a significant influence on research, the theory can be easily applied to the counseling field. Although research exists on issues relevant to counseling, such as trauma and resilience, many of the well-known researchers in the field (i.e., Cicchetti and Toth) come from a developmental or clinical psychology background. The counseling field would benefit from a better understanding of resilience as the promotion of resilience may improve the lives and functioning of adolescents victimized by physical violence. The lack of contribution to the research from the counseling field should improve as the clinical application of the theory is beneficial to the field.

Seminal studies.

Research in the field has expanded significantly over the past 20 years. Longitudinal studies have made considerable contributions by identifying resources that predict normal development following risk and the processes by which this occurs (Cowen, Wyman, Work, & Iker, 1995; Kilka, & Herrenkohl, 2013; Masten, 1994; Werner & Smith, 1992).

One of the first seminal studies was Garmenzy's Project Competence Study (1984). The study began in 1977 with cross-sectional assessments of life events and competence. Families with children in the 3rd - 6th grades were chosen to participate in the study. The original sample included 205 children. The historical study consisted of

four waves; the final wave was conducted when the participants were ages 27 to 33 years. Participant retention was almost 90% throughout the study. This research set the course for the study of resilience and helped form the basis of the theory. It was first to claim that a pattern existed; this pattern is currently defined as resilience. It recognized certain factors following risk were more likely to yield positive outcomes. Additionally, later waves were the first of their kind to suggest an individual could transition from not exhibiting resilience to later being defined as resilient. Thus, it had a considerable influence on the development of the theory. The seminal study provided evidence of the existence of resilience, an original list of relevant protective factors, and suggested the discontinuity of resilience.

Likewise, the Kauai study conducted by Werner and Smith (1982, 1992, and 2001) is considered to have had a significant effect on resilience theory. The longitudinal study followed 505 individuals born in 1955 on the island of Kauai. The researchers used a natural history method to follow the participants from birth until they were in their forties. Researchers found significantly different outcomes among people living in similar environments and having similar risks. Of those in high-risk environments (i.e., poverty or divorced parents), approximately two-thirds had negative outcomes. Therefore, approximately one-third showed positive outcomes (Werner, 1995). Even more, almost two-thirds exhibited positive outcomes by ages 32 and 40 (Werner & Smith, 1992). Werner examined potential protective factors to determine how the other one-third was able to become successful adults. A list of well-cited protective factors was created (Werner & Smith, 1982). The study did not include many of the protective factors widely accepted today (e.g. parental caregiving styles).

History of the definition of resilience.

To understand the concept of resilience fully, a greater specification of the definition is important (Masten, 2006). The understanding of the transformation of the term into the definition widely used today offers more clarity. Defining historical related concepts helps clarify the concept of resilience. This allows for the distinction between concepts and minimizes confusion.

"Invulnerable" and "invincible" were terms used early on in the research to describe the concept. It was soon discovered that these terms were misleading because they inferred that the individual managed to escape risk without any adverse consequences or without being affected by the event (Fraser, Kirby, & Smokowski, 2004). As described previously, individuals are expected to be affected by the event; further, the terms "invulnerable" and "invincible" suggested permanent effects, which has been discredited in the literature. Therefore, these terms were not found to be adequate synonyms for the concept of resilience (Rutter, 2006).

"Hardiness" is similar to resilience and may be mistaken as such. The term was incorrectly used interchangeably with resilience in the beginning of the research in this field. "Hardiness" is considered to be the ability to withstand adversity, but is considered a personality trait (Rutter, 2006). Early efforts in developing the theory focused on personal qualities and research evolved to include external as well as internal factors. Focusing on personal traits may cause the perception that a person does not have what it takes, which does not aid in helping adolescents improve and adapt from trauma (Luthar, Cicchetti, & Becker, 2000). Early work by Pines (1975) suggested resilience should be considered a stable personality construct. Thus, children who exhibited resilience were

considered to be “invulnerable.” As the field has developed, the concept of resilience has evolved to acknowledge that resilience is more than a personality construct, and instead is a dynamic process (Luthar, 2003). Therefore, his claim of resilience as a stable personality construct has been refuted. Further, evidence against hardiness exists as individual qualities rarely explain more than a small amount of variance in behavior across situations (Rutter, 2006). Research has shown individuals’ qualities, taken alone, are unlikely to lead to successful adaptation when presented with adverse situations. Resilience is considered a multidimensional process, which involves outside systems (Rutter, 2006). Resilience requires several risk and protective factors. Individuals must possess a range of protective factors across a variety of levels, including family and community environments (Olsson, Bond, Burns, Vella-Brodrick, & Sawyer, 2003). Therefore, to suggest that there is a resilient type is inaccurate. Hardiness as a term interchangeable with resilience has thus been discredited (Bonanno, Brewin, Kaniasty, & LaGreca, 2010).

Relevant Theories

The resilience framework in regard to maltreated adolescents may benefit from inclusion of other well-known theories. Whereas a case may be made for the inclusion of several well-known theories, the theory most relevant to this study is ecological-transactional theory (Cicchetti & Lynch, 1993). Ecological-transactional theory (Cicchetti & Lynch, 1993) builds on factors that are beneficial to wellness to provide a thorough foundation to help understand the interaction of risk factors and protective factors in various contexts. Myer’s indivisible self wellness theory provides a supplemental theoretical base to integrate resilience framework into the counseling profession.

Developmental theories offer supplemental background of the context of adolescent development.

Ecological-transactional theory (Cicchetti & Lynch, 1993) has been chosen as the primary theory to help understand resilience in adolescents victimized by physical maltreatment. While developmental theory provides a strong basis for how resilience might affect development in adolescence, ecological transactional theory provides a more thorough foundation for understanding the major tenets of resilience theory (i.e. the interaction between risk factors, protective factors, and resilience domains). Ecological transactional theory builds on the importance of context of factors in resilience provided by Myer's indivisible self wellness theory and allows for inclusion of cultural, systems, and environmental contexts. Systems and contextual influences are essential to resilience and relevant to its relationship to the counseling field. Additionally, ecological transactional theory was selected based on its frequent use as the theoretical basis in literature on maltreatment and resilience. Although other theories, such as attachment theory and social learning theory, may be relevant to understanding resilience in adolescents exposed to trauma, they pertain mostly to specific protective factors or outcomes and are not as inclusive as the ecological-transactional theory.

Indivisible self.

Myers, Sweeney, and Witmer (2000) defined wellness as "a way of life oriented toward optimal health and well-being in which body, mind, and spirit are integrated by the individual to live life more fully within the human and natural community. Ideally, it is the optimum state of health and well-being that each individual is capable of achieving" (p. 252). The indivisible self wellness model is comprised of five second

order factors of wellness: creative, coping, social, essential, and physical. The creative second order factor includes an individual's cognitions, emotions, control, work, and positive humor. The second-order factor of coping contains leisure, stress-management, self-worth, and realistic beliefs. The social factor is comprised of friendship and love. The social factor correlates to the protective factors of peer support and parental support. The second-order factor of essential includes spirituality, gender identity, and self-care. This incorporates one's existential sense of meaning, purpose, and hopefulness in life (Myers & Sweeney, 2004). The physical second-order factor involves the individuals' level of exercise and daily nutrition. Several of these second-order factors have been shown to be important protective factors in resilience theory. Although a case could be made for the importance of these protective factors, the factors included in many of these second-order factors are not commonly studied in the adolescent maltreatment resilience research and thus, lack empirical support. Though all five second-order factors may be relevant to resilience, this study will focus primarily on social second order factors (i.e. parental support and peer support) because they have the most empirical support in the literature on adolescent resilience. Both social protective factors are in close proximity to the individual, and relevant to female adolescents as females may be more likely to utilize interpersonal protective factors (Hartman, Turner, Daigle, Exum, & Cullen, 2009; Sun & Stewart, 2007).

The indivisible self model can be integrated into Cicchetti and Lynch's ecological-transactional theory. It is ecological in nature and includes local, instructional, global, and chronometrical contexts (Myers, 2004). The Indivisible Self's local context corresponds to Cicchetti and Lynch's microsystem and includes families, neighborhoods,

and communities. The instructional context correlates with the macrosystem and includes education, religion, government, and media. The global context includes politics, culture, global events, and environment. The chronometrical context suggests people change over time. The social second order factors align with the microsystem factors in ecological-transactional theory. Similar to developmental theory, it suggests wellness choices made in adolescence may have a cumulative positive effect as the individual develops (Myers and Sweeney, 2004).

Summary.

The indivisible self theory integrates a counseling-oriented theory into the resilience framework. The factors relate to the protective factors in the resilience framework and fits well with the underlying basis of ecological-transactional theory. However, the following theory (ecological-transactional) was chosen as the primary theory as it adds to the framework of the indivisible self wellness theory by providing a more detailed background of the contexts and levels of factors that can affect one's resilience (ecological) and its process (transactional).

Ecological-transactional theory.

The ecological-transactional model (Cicchetti & Lynch, 1993) suggests adolescents may function within multiple ecologies that affect each other as well as impact their overall development. This model is developed from the integration of Bronfenbrenner's (1979) ecological systems theory and transactional theory. The transactional view of development considers adolescent and environmental factors mutually interactive over time. According to this theory, resilience occurs through mutual adaptations in an environment and responsiveness to that environment. The theory

considers adolescents to be active organizers of their experiences. It is bidirectional with adolescents influencing their environments and interactions with others, and the environment influencing them and their perceptions. According to this theory, development is discontinuous and may change throughout development as is resilience (Belsky, 1993; Bronfenbrenner, 1979; Cicchetti & Lynch, 1993).

Bronfenbrenner's (1979) ecological perspective suggests multiple levels of an adolescent's ecologies influence each other and the individual's development. Cicchetti and Lynch (1993) build on Bronfenbrenner's ecological theory to classify influences into four systems. The multiple levels include macrosystem, exosystem, microsystem, and ontogenic development. The ontogenic level consists of factors within an individual that contribute to his or her development. Microsystem refers to the individual's environment (i.e. the protective factors of parental and peer support). The exosystem is comprised of the individual's neighborhood and community environment. The macrosystem includes societal beliefs and values. This perspective suggests these levels interact with each other to influence the adolescent's development. The resilience framework may be integrated with this perspective, as risk and protective factors are assumed to operate at each of the ecological levels (Reyes & Elias, 2011). Thus, protective factors in multiple ecological levels may be helpful to promote resilience (Cicchetti, Rogosch, Lynch, & Holt, 1993; Cicchetti & Toth, 1995).

The transactional integration of the model accounts for the bidirectional influence of the continuous interaction between the adolescent and the environment in his/her development over time. This is integral to understanding the influence of the reciprocal processes within systems in Bronfenbrenner's model (MacKenzie, 2011). It is a process-

oriented systems framework, which allows for the complexity of family systems and peer support to be included in understanding the effects of physical maltreatment and the resilience process in adolescents.

In the transactional model, individual protective factors, family protective factors, and other environmental factors influence each other and have bidirectional influences on the individual's development. For example, it could be hypothesized that parental support could provide adolescents the security to build healthy peer supports. Risk and protective factors are categorized as either transient or enduring factors (Cicchetti & Lynch, 1993).

The level of proximity of the factors is also important in this theory. Risk and protective factors in a more proximal environment tend to have more direct effects on development (Cicchetti & Lynch, 1993). Proximal influences on development include the microsystem and ontogenic development. This includes the microsystem protective factors of peer support and parental support. Therefore, peer support and parental support are expected to directly influence resilience.

The ecological-transactional model of resilience includes four domains of influence and two transactional points between domains. The four domains of influence include: 1) acute stressor or challenge (i.e. physical maltreatment); 2) environmental context (i.e. parental support, and peer support); 3) individual's characteristics; and 4) outcome (i.e. behavioral and emotional outcomes). The transactional points exist between the environment and the individual and are separate from the individual and the outcome.

The ecological-transactional perspective involves families, communities, and the pattern of interactions and transactions between the two and the individual. Multiple levels of the adolescents' ecologies influence each other (i.e. factors in exosystem,

microsystem, and ontogenic development) and in turn influence the adolescent's development. Factors within a given level can influence events, factors, or outcomes in any surrounding level. The model is affected by the adolescent's perception and interpretation of experiences (Cicchetti & Lynch, 1993).

Summary.

Cicchetti and Lynch's ecological-transaction model has been utilized as a foundational theory for several resilience researchers (Cicchetti & Toth, 2000; Overstreet & Mazza, 2003). It is important to understand the context of systems and environmental influences when studying resilience. Systematic influences are categorized into four systems: microsystem, exosystem, macrosystem, and ontogenic development. According to the theory, the closer proximity of the protective factor, the more likely it is to protect against risk factors in resilience. This can likely be explained by transactional component of the theory. The transactional concept suggests an interaction among systems. The closer the proximity, the higher the impact of the interaction. Therefore, peer support and parental support factors are located in the microsystem and expected to have a significant impact on resilience.

Adolescent Development

Resilience is particularly important during adolescence, as it is the second most rapid developmental period (Ahern, Ark, & Byers, 2008; Catalano, Berglund, Ryan, Lonezak, & Hawkins, 2004). Adolescence may be defined as the period within the lifespan when most of a person's biological, cognitive, psychological, and social characteristics are changing from what is typically considered child-like to what is considered adult-like. It is commonly defined by chronological age (11-18 years old).

This current study will include adolescents ages 11 to 17.5 years old. The age range was chosen based on the chronological age most commonly used for adolescents and the upper limit of the age range (17.5 years old) of the dataset.

In general, adolescence can be a confusing time for youth (Wolfe & Mash, 2006). During this developmental period, changes, including cognitive development, the need for autonomy, and growing peer influence, place adolescents at unique risk (Kazdin, 2000). However, this time period can also present opportunities for growth and development (Compas, Hinden, & Gerhardt, 1995).

Rapid changes occur during adolescence. Cognitive improvements result in changing perceptions of their environment and adverse experiences. Cognitive abilities improve during adolescence, allowing faster and more efficient processing of information (Steinberg, 2014). Thus, adolescents are more capable of hypothetical and logical reasoning than when they were younger. The improvement in cognition is relevant as adolescents may process the trauma of physical maltreatment differently than as a child.

Adolescence is also known for its transitions. Transitions have been cited as a time of exceptional vulnerability. Adolescents are faced with two transitional periods as they switch from middle school to high school and move from high school to adulthood. At the end of this period, they are expected to behave as adults with voting rights, ability to serve in the military, and potentially raising their own children. Adolescents' growth and development has implications for adulthood. The ability to successfully navigate developmental tasks affects the ability to function well in adulthood (Crockett & Crouter, 1995).

In addition to the risk of transitions, adolescents are vulnerable as a result of increased pressure. Adolescents are faced with significant pressures, including the need to perform well academically and to "fit in" socially (Neff & McGehee, 2010). The importance of friendships and peer groups increases during adolescence (Crosnoe, & Elder Jr., 2004). Adolescents spend increasingly more time with peers than parents. Still, close relationships with parents may serve as a secure foundation for adolescents to test identities - a major focus of the developmental period (Crosnoe, & Elder Jr., 2004). Newfound independence, heightened stress, and growing peer influence increases adolescents' risk of negative outcomes (Neinstein, 2009; Steinberg, 2014).

The pressures of adolescence and developmental task of creating an identity may increase the likelihood of adolescents engaging in risky behaviors (Ahern, Ark, & Byers, 2008). Adolescents are afforded more independence and engage in more unsupervised activities. The most salient risks during adolescence have been identified as drug, alcohol, and substance use and abuse, unsafe sex, teenage pregnancy and teenage parenting, school underachievement, failure and dropout, delinquency, crime, and violence (Lerner & Galambos, 1998). Risk-taking behaviors account for 70% of adolescent mortality (Park, MacDonald, Ozer, Burg, Millstein, & Brindis, 2001). The increased likelihood of risk-taking behaviors poses a threat to adolescent development. Although adolescents experience improved cognitive abilities, increased exposure to risk-taking behaviors and reduced parental guidance resulting from an increase of autonomy places adolescents at unique risks. The unique risks and challenges of adolescence may be better understood through developmental theories.

Erikson's psychosocial stages of development.

According to Erikson's (1968) psychosocial stages of development, the adolescent developmental period creates tension between two stages - crisis of identity versus role confusion. During this time, adolescents struggle to create their identity through political, social, sexual, and career identities. Embedded in this struggle is the experimentation with a variety of different identities. According to Erikson, they must determine a self-identity while still keeping some form of group ideals. Additionally, adolescents during this period should be able to establish intimate ties with others. Adolescents who have had previous tasks unresolved may have more difficulty with these developmental tasks of establishing ties to others and may be confused about their identity and roles. Adolescents who do not solve this crisis may reach adulthood directionless, confused, shallow, and unprepared. Conversely, adolescents who are successful in this crisis may enter adulthood with self-chosen values, goals, morals, and political ideology.

Erikson's (1968) psychosocial stages of development is relevant to resilience in adolescent development as it may provide insight for a theoretical basis for the salience of protective factors and resilience domains to the developmental stage. It could be suggested that parental support and peer support could help an adolescent create an identity. Another prominent developmental theory, Piaget's (1972) stages of cognitive development provides an additional developmental foundation of adolescence. It differs from Erikson's theory as it focuses on increased cognitive abilities of this time period.

Piaget's stages of cognitive development.

Piaget (1972) referred to the adolescent time period (age 11 or 12 to adulthood) as the formal operational stage of cognitive development. This is the final stage in his

developmental theory. According to the theory, this stage is characterized by increased cognition in many areas including thinking about possibilities instead of only concrete events, capable of deductive reasoning, and thinking abstractly to solve hypothetical problems. With the cognitive growth associated with this period, adolescents may believe they know all of the answers and become critical of their parents and their parent's choices. According to the theory, adolescent cognition is also characterized by egocentric thoughts. Adolescents tend to overestimate their significance. The combination of egocentric thoughts, hypothetical thinking, and thinking about possibilities may also result in adolescents thinking they know all solutions to a problem. However, adolescents may not have explored all possible rational solutions. This may negatively impact their ability to make well-informed decisions. Piaget's (1972) theory of cognitive development is relevant to resilience in adolescents as it provides rationale for the additional susceptibility for negative outcomes in adolescence following maltreatment and the need to promote resilience. While Erikson's and Piaget's theories expanded on one consideration in adolescence each (i.e. identity and cognition), Masten's (2012) developmental psychopathology theory provides theoretical background to encompass many aspects of the developmental period.

Developmental psychopathology theory.

Luthar (2000) suggested development is affected by resilience or the lack thereof at each stage. Resilience is a complex, systematic interaction within different stages of development. Salience of risk and protective factors may vary depending on the developmental stage (Masten, 2012). Therefore, a developmental theory is important to understanding resilience in adolescents.

Masten's (2012) developmental psychopathology theory is an integrative model of developmental frameworks. This theory is often employed in child and adolescent maltreatment resilience literature. Developmental psychopathology theory integrates assumptions from developmental systems theory. It assumes development is a function of a complex interaction among genes, internal, and environmental systems. The theory includes seven core principles: developmental; normative; systems; multilevel; agency principle; mutually informative; and longitudinal principles. One of the developmental principles states all individuals change throughout their life and thus, a developmental perspective is necessary to understand individuals. The normative principle suggests behaviors or outcomes are defined problematic relative to cultural and historical normative development. It suggests norms exist with respect to how and when developmental tasks are to be met in the context of a person's gender, age, and culture. Thus, resilience domains (i.e. behavioral and emotional) should be defined based on normative developmental outcomes. The systems principle theorizes that individuals are constantly affected by interactions within their systems (i.e., family) and within multiple systems. Problems may arise from issues in interactions within the system. This concept relates to the transactional component in ecological-transactional theory. The multilevel principle suggests processes occur within multiple levels from genes to cultural systems. This principle can incorporate multiple levels within the ecological component of the ecological-transactional theory. The agency principle suggests individuals are active agents in their development and may choose their environments and how they react. The mutually informative principle states psychopathology theories must understand both

normative and non-normative development. The longitudinal principle promotes the importance of studying development throughout the lifespan (Masten, 2012).

Additionally, developmental psychopathology assumes multi-finality in developmental processes. The interaction between risk and protective factors at each level of ecology results in a diversity of developmental outcomes among adolescents. This accounts for the differences in outcomes and adaptation (Masten, 2012). This correlates to the current understanding of the resilience process and the transactional component of Cicchetti and Lynch's ecological-transactional theory.

Developmental theory (Masten, 2012) is integral in understanding the population of maltreated adolescents. Research has shown maltreatment may have different effects when it occurs at different developmental levels (Bolger, Patterson, & Kupersmidt, 1998; Cicchetti & Toth, 2000; Masten, 2012). This current study focuses on environmental systems due to the relevance to the counseling field and empirical support on resilience in maltreated adolescents. Developmental theory (Masten, 2012) highlights the importance of promoting resilience to allow for successful development in adolescents victimized by physical abuse.

Importance of studying adolescence.

Overall, adolescence is a period of rapid change, which makes the population vulnerable to the effects of physical maltreatment. The transitional periods and increased independence places adolescents at risk to engage in high risk behaviors or experience internalizing symptoms. The psychosocial stage of identity versus role confusion crisis places adolescents at risk for experimentation and supports an increased role of peers (Erikson, 1979). Increased cognitive processing during Piaget's formal operational stage

may add complexity to the risks of physical abuse (Piaget, 1972). During this developmental period, individuals may be more susceptible to perceiving events as stressful. It is reported that adolescents are three times more likely than adults to be victimized placing adolescents at high risk for negative outcomes (Christiansen & Evans, 2005). Given the increased complexity and unique risks of adolescence, a better understanding of resilience is especially important. Masten's developmental psychopathology theory may add supplemental understanding to the conceptualization of the context of adolescent development in risk.

Summary.

The developmental time period is critical to understanding resilience in this population of physically maltreated adolescents. Adolescence presents unique challenges and development of new strengths that are highly relevant to the resilience process. Adolescence poses additional risks including transitioning into adulthood, increased social and academic pressure, increased independence, and trying to find their identity (Kazdin, 2000). As a result, adolescents are at an increased risk of emotional and behavioral problems. This may affect the transition into adulthood (Crockett & Crouter, 1995). Victimization of physical maltreatment places adolescents at an even higher risk for those negative emotional and behavioral outcomes (Carbonell, Reinherz, & Giaconia, 1998; Cicchetti & Toth, 1995; Jaffee, 2007; Werner & Smith, 1992). Peer support and parental support may provide the positive influence and security for adolescence to protect against potential negative emotional and behavioral outcomes. Though these challenges and pressures place adolescents at increased risk for potential negative

emotional and behavioral outcomes, the risk factor of physical maltreatment results in even higher vulnerability to the negative outcomes.

Risk Factors

Risk factors increase the likelihood of negative outcomes (Doll & Lyon, 1998; Garmezy & Rutter, 1983; Masten, 1994; Werner, 1990). However, risk factors may interact with protective factors to minimize negative outcomes associated with the risk and produce resilience. In fact, the presence of risk factors is required for resilience to occur (Doll & Lyon, 1998; Garmezy & Rutter, 1983; Masten, 1994; Werner, 1990). The current study will focus on the risk factor of physical maltreatment. This risk factor has been shown to predict negative outcomes. Thus, it is be sufficient to meet the requirement of a risk factor in the resilience process (Anderson & Bang, 2012; DuMont, Widom, & Czaja, 2007; Jain, Buka, Submramanian, & Molnar, 2012).

Maltreatment.

Resilience literature supports adolescent maltreatment as a significant risk factor (Cicchetti, 2013; Masten, Hubbard, Gest, Tellegen, Garmezy, & Ramirez, 1999). Maltreatment has been defined by the Federal Child Abuse Protection and Treatment Act (CAPTA, 1996) as "any recent act or failure to act resulting in imminent risk of serious harm, death, serious physical or emotional harm, sexual abuse, or exploitation of a child (minor age as described by state statutes) by a parent or caretaker (including out-of-home care providers) who are responsible for the child's welfare." This study will focus on physical maltreatment.

Physical maltreatment.

Physical abuse is defined by the Federal Child Abuse and Prevention Act

(CAPTA) as “intentional physical injury inflicted by a caregiver or someone responsible for a child, which includes punching, beating, kicking, biting, shaking, throwing, stabbing, choking, hitting, burning or otherwise harming” (Child Welfare Information Gateway, 2013). The National Child Abuse and Neglect Data System (NCANDS) reported approximately 149,000 substantiated cases of physical abuse in children in 2003 (U.S. Department of Health and Human Services, 2005).

Victims of physical abuse have been shown to exhibit more behavioral symptoms than those subjected to than other types of abuse (Cicchetti & Toth, 1998). In a review of literature published from 1988 to 1998, Kaplan, Pelcovitz, and Labruna (1999) stated approximately 40% of youth physical abuse victims will meet criteria for major depressive disorder during their lifetime. Another 30% will meet criteria for disruptive behavioral disorders, including oppositional defiant disorder or conduct disorder (Kaplan, Pelcovitz, & Labruna, 1999).

Maltreatment has been described as a public health concern. The issue has become pervasive and results in many adverse consequences (Sousa, Herrenkohl, Moylan, Tajima, Klika, Herrenkohl, & Russo, 2011). In 1990, the U.S. Advisory Board on Child Abuse and Neglect declared it a “national emergency” (Henry, 2001). It has become a costly and widespread issue.

Prevalence of maltreatment.

The U.S. Department of Health and Human Services (2009) reported that in 2007, an estimated 794,000 children in America were reported to be abused or neglected; most were cases of neglect, but 10.8% of cases involved physical abuse; girls and boys were found to be at equal risk (51.5% vs. 48.2%). In 2007, 1,760 children died from abuse or

neglect, with a fatality rate of 2.35 per 100,000 children (U.S. DHHS, 2009). The reported prevalence rate of maltreatment is considered sizeable (Tajima, 2010). In 2011, approximately 1.6 per thousand in the U.S. suffered physical abuse according to another report (Child Trends, 2013). The U.S. Department of Health and Human Services, Administration of Children, Youth and Families (2008) reported approximately 885,245 victims of maltreatment. Approximately 16% were victims of physical abuse (Ford, Elhai, Connor, & Frueh, 2010). These prevalence rates are most likely conservative estimates, as many do not admit to the violence and thus, many cases go unreported. Estimates of maltreatment may also vary depending on sampling, operational definitions of the types of violence and methodologies (Tajima, 2000). Data is lacking for the prevalence of physical abuse in adolescents only as most statistics combine children and adolescents.

Effects of maltreatment.

Effects of physical maltreatment are widespread and troubling. It is widely regarded that maltreatment has a significant and sizeable effect on adolescents' functioning. Short- and long-term effects of victimization are extensively documented (Anderson & Bang, 2012; DuMont, Widom, & Czaja, 2007; Jain, Buka, Subramanian, & Molnar, 2012). Physical maltreatment has been shown to result in negative emotional and behavioral deficits (Jain, Buka, Subramanian, & Molnar, 2012). Maltreatment negatively impacts adolescents' adaptive abilities, emotional well-being, social functioning and physical health (Anderson & Bang, 2012).

Aggressive and antisocial behaviors or fearful and inhibited behaviors are associated with adolescent physical maltreatment (Gewirtz & Edleson, 2007; Martinez-

Torteya, Bogat, von Eye, & Levendosky, 2009; Marsh, 2009; O'Donnell, Schwab-Stone, & Muyeed, 2002). Criminal behavior linked to maltreatment has received attention for its short- and long-term negative economic and socio-environmental consequences (Marsh, 2009). Additionally, substance abuse is common in victims (Marsh, 2009; Salami, 2010). Adolescent victimization is correlated with higher dropout rates (Salami, 2010).

Increased anxiety, depression, trauma symptoms and conduct disorder/temperament problems were found in adolescents subjected to violence (Gewirtz & Edleson, 2007; Jain, Buka, Subramanian, & Molnar, 2012; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009; Salami, 2010; Ward, Martin, & Distiller, 2007). Ward, Martin, and Distiller (2007) found victimization was associated with anxiety, depression, behavior problems, and peer delinquency. It has also been associated with low self-esteem, social withdrawal, depression and anxiety in children (Moylan, Herrenkohl, Sousa, Tajima, Herrenkohl, & Russo, 2010). In addition to the risks during adolescence, studies have also linked maltreatment to depression, post-traumatic symptoms, low self-esteem, greater distress and lower social adjustment later in adulthood (Henning, Leitenberg, Coffey, Turner, & Bennett, 1996; Silvern, Karyl, Waede, Hodges, Starek, Heidt, & Min, 1995).

Maltreatment also places adolescents at an increased risk to perpetuate physical violence later in life; this is referred to as intergenerational transmission of violence (Dodge, Pateo, & Pettit, 1990). Additionally, maltreated adolescents are more likely to be victimized by domestic violence in adulthood. Preventing deleterious effects of maltreatment is critical to break the cycle of intergenerational transmission of maltreatment (Dodge, Pateo, & Pettit, 1990; Dodge & Pettit, 2003).

Numerous harmful effects of maltreatment have been evaluated in previous research on risk. However, not all participants in these studies exhibited negative effects (Garmezy, 1993; Werner, 1989, 1993; Werner & Smith, 1982). Resilience theory addresses these findings. It helps explain how individuals may adapt through the use of protective factors to minimize negative outcomes. A greater understanding of resilience is important to identify this part of the population that does not show the expected negative effects following the risk of victimization by physical violence and promote it in other at-risk individuals (Afifi & MacMillan, 2011; Gertwitz & Edleson, 2007; Kolbo, 1996; Sousa et al., 2011). Promotion of resilience in adolescents victimized by physical violence may minimize negative outcomes from those risks (Masten, 2000).

Rationale for type of maltreatment.

All types of maltreatment have been shown to have detrimental effects on adolescents. Physical abuse is empirically supported in the literature to place adolescents at substantial risk for negative outcomes. Studies have shown that childhood sexual abuse has additional negative effects that may alter the resilience process (Beitchman, Zucker, Hood, DaCosta, & Cassavia, 1992; Desai, Arias, Thompson, & Basile, 2002; Edmond, Auslander, Elze, & Bowland, 2006; Thompson, Arias, Basile, & Desai, 2002). The inclusion of sexual abuse may produce different resilience processes than physical maltreatment alone.

Emotional maltreatment and neglect may be difficult to study as emotional violence and neglect often coincide with physical maltreatment (Iwaniec, Larkin, & Higgins, 2005). Psychological and physical maltreatment often co-occur. Claussen and Crittenden (1991) studied 175 children ages 2 to 6 years old with substantiated reports of

maltreatment to examine the relationship between physical and psychological maltreatment. Participants were recruited after being reported to the child protection team (CPT) in a large city in Florida. The type of maltreatment was determined by their local Department of Health and Rehabilitative Services (HRS) diagnostic codes. The study found that in 89% of cases of physical maltreatment, psychological maltreatment also existed. Further, in 86% of cases of psychological maltreatment, physical maltreatment was also present. However, the study focused on maltreated children, not adolescents. This current study focuses on physical maltreatment in adolescents, not children.

Rationale for foster care exclusion.

Foster care youth possess the additional risks of being forced out of their homes and removed from their families. They have to adapt to new family members and new rules. Potentially, foster care youth may have to switch schools and be with a new group of peers. These additional risks may result in worsened outcomes than those for maltreated children who remain in their homes. Combining adolescents with a history of maltreatment with adolescents in foster care who have been maltreated may alter the findings on resilience (Keil & Price, 2006; Kortenkamp & Ehrle, 2002). Therefore, to gain the best understanding of resilience, it will be beneficial to study resilience in the two populations separately.

Excluding adolescents in foster care can be rationalized by findings, which have demonstrated that there are additional unique risks for adolescents in foster care (Keil & Price, 2006). Studies indicate higher risks in the foster care population. For example, 27% to 31% of youth in foster care exhibit emotional or behavioral problems as compared to 13% of children and adolescents who lived with a high-risk parent in the

same study (Kortenkamp & Ehrle, 2002; Pilowsky & Wu, 2006). Statistics in these studies came from analysis of the National Longitudinal Survey of Adolescent Health dataset and the National Survey of America's Families dataset.

Studies suggest foster home settings may include negative influences on outcomes beyond the risk factor of maltreatment (Keil & Price, 2006; Kortenkamp & Ehrle, 2002). As a result of the additional risk and its effect on resilience, adolescents in foster care will be excluded from this study.

Summary.

Risk factors, by definition, render individuals vulnerable to negative outcomes. Physical maltreatment will be the risk factor of focus in the current study. Physical maltreatment is defined by the Federal Child Abuse and Prevention Act (CAPTA) as "intentional physical injury inflicted by a caregiver or someone responsible for a child, which includes punching, beating, kicking, biting, shaking, throwing, stabbing, choking, hitting, burning or otherwise harming" (Child Welfare Information Gateway, 2013). The potential effects of physical maltreatment are considerable and extensive, including behavioral and emotional problems in adolescents (Anderson & Bang, 2012; DuMont, Widom, & Czaja, 2007; Jain, Buka, Subramanian, & Molnar, 2012). Physical maltreatment was chosen as the risk factor as it is empirically supported in the literature to place adolescents at risk for negative outcomes.

Measurement of Resilience

Risk factors, by definition, increase the likelihood for negative outcomes. The literature has provided ample evidence of the negative impact of physical abuse (Anderson & Bang, 2012; DuMont, Widom, & Czaja, 2007; Jain, Buka, Subramanian, &

Molnar, 2012). Resilience is considered the ability to bounce back following victimization (Luthar, 2000). Several issues exist when determining the appropriate way to measure resilience. Determining the appropriate measurement of competence in the resilience domains must be considered to objectively study resilience. Researchers question whether resilience should be considered when one is competent in performing adequately in the face of adversity, or when one is excelling (Earvolino-Ramirez, 2007; Luthar, 2000; Robinson, 2000). It is also unclear in the literature if the measurement of resilience should be domain-specific or across all domains. Luthar (2006) suggests resilience is a multidimensional process and should be defined by measuring outcomes in multiple developmentally appropriate domains. Other research suggests the impact of protective factors may vary among domains and argues measuring it as such (Luthar & Zelano, 2003; Vanderbilt-Adriance, & Shaw, 2008). Additionally, the severity of risk factors included to accurately examine the resilience process requires consideration (i.e. too severe of risk may alter the resilience process or not produce resilience). These issues will be addressed below.

Resilience level.

The debate between the level of competence and the number of domains may depend on the amount of risk. It is likely the higher the amount and severity of the risk factors, the greater the likelihood of adverse outcomes and the more difficulty for one to exhibit resilience if defined by excelling or competence in multiple domains (Luthar, 2000). Therefore, it could be hypothesized that criteria for resilience should be dependent on level of risk. For example, research has shown that trauma from victimization of physical violence has significant adverse effects on individuals (Cicchetti & Toth, 1994;

Collin-Vezina, Coleman, Milne, Sell, & Daigneault, 2011; Daniel, 2006; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009). The criteria for resilience within this population of physically maltreated adolescents may be less strict than with lower risk levels as the risks associated with physical maltreatment may be higher and more severe.

It may be unrealistic to require one to have positive adaptation in all domains (Luthar, 2000). Low-risk children who are considered developmentally "normally" may not even show positive adaptation across all domains. Resilience cannot be considered as complete absence of symptoms because at least some symptoms are likely to be present following being physically maltreated.

A study by Bolger and Patterson (2003) provided support for the use of median scores to measure resilience. The study included 107 maltreated children. The study utilized aggressive behavior, peer acceptance, internalizing behavior, and academic achievement as resilience domains. When a strict resilience criterion (i.e. the sample median on the composite of all four resilience domains) was set, only 21% of participants were considered resilient. The low quantity of resilient individuals in the initial criteria suggests that if the criteria are too strict for maltreated individuals, there may not be an accurate measure of resilience.

Domain-specific resilience vs. overall resilience.

Criteria for level of competence in the domains of resilient is not well defined in the literature. Often, researchers determine level of competence by their theoretical perspective and level of risk factors. Resilience may be measured by a single domain (a unidimensional perspective) or by some combination of domains (a multidimensional perspective). Researchers debate whether resilience should be competence in at least one

domain, competence in all domains, or excelling in one or more domains (Luthar, 1993; Tolan, 1996). Tolan (1996) suggested individuals must excel in multiple domains to be resilient. Luthar (1993) argued that the concept of resilience exists in individuals whom excel in one domain and demonstrate at least average performance in all other areas. Luthar and Zelano (2003) rationalize that resilience is not an "all-or-nothing" concept and multiple domains are needed to have an accurate portrayal. Others choose to utilize single domains of adjustment to determine the factors associated with positive outcomes in each domain (Arrington & Wilson, 2000; Cunningham, Hurley, Foney, & Hayes, 2002; O'Donnell, Schwab-Stone, & Muyeed, 2002). Specifically, risk and protective factors may be specific to particular resilience domains. Therefore, some discontinuity across domains may be expected (Rutter, 2000). In a meta-analysis study, Vanderbilt-Adriance (2008) found evidence that the likelihood of discontinuity across domains may increase as level of risk increases. As evidenced by the high-risk level of negative outcomes mentioned previously for adolescents victimized by physical maltreatment, it makes sense that this population may exhibit some discontinuity between domains of resilience. For these reasons, Luthar suggests not generalizing across levels of risk, but taking a domain-specific approach to resilience (Luthar, 1993).

Moreover, when some studies measured resilience across all domains, most individuals failed to meet the criteria for resilience. This suggests the concept of resilience may not be captured if the definition is too narrowly defined (Egeland, Carlson, & Sroufe, 1993). Egeland, Carlson, and Sroufe (1993) studied resilience in children and adolescents from birth to 18 years old. The study utilized data from the Minnesota Mother Child Project. Of the 267 participants, 44 were classified as maltreated children.

The study found that although some children were resilient in specific domains of functioning, no maltreated children appeared resilient across all domains of functioning. It should be noted that the small sample size may impact the validity of the study. Additionally, the study included children and adolescents and all types of maltreatment instead of the current study's focus only on physical maltreatment and adolescents. Therefore, the findings only provide limited generalizations to the current study.

A valid argument can be made for the measurement of resilience both unidimensionally and multidimensionally. Some aforementioned studies provided support that resilience should be measured specific to the variable and may not be generalized. Resilience as measured by each domain has the advantage of providing additional information on the individuals' strengths and weaknesses depending on domain (Vanderbilt-Adriance, 2008). This clarifies which protective factors promote each specific domain of resilience. However, theoretically, resilience should also be measured overall as one concept. A multidimensional approach may present a different combination of salience of protective factors.

Given the research and theoretical basis supporting each side of the debate: resilience being measured as a construct across all domains and each specific domain, a combination of the two appears to be the best way to measure resilience. In the present study, resilience will be defined as an overall resilience to two domains. Because the outcomes measure distinct constructs (i.e. emotional and behavioral resilience), they will also be measured separately to find whether any domain is more salient to risk and vulnerabilities.

Summary.

The resilience framework suggests the ability to bounce back should be measured by outcomes in developmentally appropriate domains (Frasier et al, 2014; Masten, 2001). The theory suggests that resilience is determined by the ability to reach developmentally appropriate goals and negotiate developmental tasks with relative success (Earvolino-Ramirez, 2007). However, operationalizing this definition into a measurement of resilience presents some difficulty. Specifically, the measurement of outcomes as resilience domains, unidimensionality versus multidimensionality of resilience measurement, and the severity of risk factors are all debated in the literature. The outcome level in each resilience domain varies in the literature on resilience. Based on Bolgar and Patterson's (2003) argument, the current study will use the median scores to measure resilience. The current study will also examine resilience unidimensionally and multidimensionally as both provide valuable information. Resilience in this study will be measured by outcomes in emotional and behavioral domains.

Resilience Domains

Resilience is best measured through developmentally salient outcomes in adolescents; these developmental outcomes are labeled as resilience domains. Emotional and behavioral domains were selected based on the salience of the outcomes to physical maltreatment and its developmental relevance to adolescence. These factors appear to have the most support in the resilience literature (Carbonell, Reinherz, & Giaconia, 1998; Coohey, Renner, Hua, Zhang, & Whitney, 2011; Flynn, Ghazal, Legault, Vandermeulen, & Petrick, 2003; Garmezy, Masten, & Tellegen, 1984; Jaffee, 2007; Jaffee & Gallop, 2007; Lansford, Malone, Stevens, Dodge, Bates, & Pettit., 2010; Luthar, 1991, Masten &

Coatsworth, 1998; Rajendran & Videka, 2006; Schoon, Parsons, & Sacker, 2004; Shonk & Cicchetti, 2001; Sternberg, Baradaran, Abbott, Lamb, & Guterman, 2006; Teisl & Cicchetti, 2008; Werner & Smith, 1992).

Emotional resilience.

Emotional resilience is characterized by an individual's ability to minimize the process of internalizing problems. Internalizing problems can be defined by an over control of emotions including social withdrawal, feelings of worthlessness or inferiority, and dependency (Achenbach & Edelbrock, 1978). Depression and anxiety are the two most prevalent internalizing disorders in maltreated adolescents (Carbonell, Reinherz & Giaconia, 1998; Jaffee, 2007; Werner & Smith, 1992). In this current study, resilience will be considered as the ability of the protective factors to minimize the negative emotional outcomes.

Depression, one of the most prevalent mental disorders in adolescence, can cause a great deal of dysfunction and maladaptive behaviors in one's life (Child Trends, 2013). Depression is characterized by depressed mood and/or loss of pleasure. At least five of the following symptoms must be present; they include "(a) depressed mood most of the day, nearly every day, (b) marked diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day, (c) significant weight loss when not dieting or weight gain, or decrease or increase in appetite nearly every day, (d) insomnia or hypersomnia nearly every day, (e) psychomotor agitation or retardation nearly every day, (f) fatigue or loss of energy nearly every day, (g) feelings of worthlessness or excessive or inappropriate guilt nearly every day, (h) diminished ability to think or concentrate, or indecisiveness, nearly every day, and (i) recurrent thoughts of death, recurrent suicidal

ideation, or suicide attempt or a specific plan for committing suicide." Criteria must be met for at least two weeks and cause significant distress and impairment in functioning (American Psychiatric Association, 2013). Depression is diagnosed with the same criteria in adults and adolescents (American Psychiatric Association, 2013).

Adolescent depression has prevalence rates similar to adult depression. According to the National Survey on Drug Use and Health in 2014, approximately 11.4% of adolescents aged 12 to 17 years old met criteria for a major depressive episode within the previous year (National Institutes of Mental Health, 2014). Using this estimate, approximately 2.8 million adolescents experience depression within a year. Estimates may be too low as they rely on self-report measures and individuals may be less likely to endorse depressive symptoms (Kessler & Walters, 1998).

Depression in adolescence warrants particular attention as the disorder often emerges during that developmental period. The age of onset of major depression is around 13 to 15 years old. Specifically, the average age of onset for girls is 14.8 and 15.3 for boys, according to the Oregon Adolescent Depression Project (Lewinsohn & Essau, 2002).

Depression often continues from adolescence to adulthood. Adolescent-onset depression has been shown to predict the disorder in adults. One study found 69% of adolescents diagnosed with major depression had a recurrent episode within seven years (Rao, Hammen, & Daley, 1999) and another found 63% within 10 to 15 years (Weissman, Wolk, Wickramaratne, Goldstein, Adams, & Greenwald, 1999). In addition, adolescent subclinical depressive symptoms predict adult major depression (Pine, Cohen, Gurley, Brook, & Ma, 1999). Lewinsohn, Rohde and Seeley (1998) predicted that 28% of

adolescents would experience a major depressive episode by the age of 19 years old. About 40% of adults have a recurrent episode within two years and 80% have an episode within five to seven years.

Physically maltreated children have shown elevated levels of depression and suicidal behavior in adolescence (Brown, Cohen, Johnson, & Smailes, 1999). Physically maltreated adolescents may lack tolerance for their own frustrations and have increased difficulty regulating their emotions resulting in internalization of problems. They often lack appropriate ways to manage the large amount of stress caused by victimization (Pelcovitz, Kaplan, Ellenberg, Samit, Krieger, & Cornelius, 1994). Youth depression may result in impairment of functioning in other areas including psychosocial and personality development, transition to adulthood, marital and relationship problems, unwanted pregnancy, and occupational and economic impairment (Barone, Moffitt, Caspi, Dickson, & Silva, 1996; Rao, Ryan, Birmaher, Dahl, Williamson, & Kaufman, 1995).

In addition to depression, maltreatment has been shown to place individuals at risk for developing anxiety disorders. Depression and anxiety are the most prevalent mood disorders in adolescents. Anxiety issues are characterized by fear and worry. Anxiety often results in emotional distress or avoidance behaviors. Anxiety has been shown to impair academic functioning, peer relationships, and social competence (Ialongo, Edelsohn, Werthamer-Larsson, Crockett, & Kellam, 1995).

Two prominent anxiety disorders are generalized anxiety disorder and panic disorder. Generalized anxiety disorder is categorized by excessive anxiety and worry that occurs more days than not for at least six months. Anxiety and worry must be related to multiple events or activities (i.e., work or school performance). The individual must find

it difficult to control the worry. To be diagnosed, the individual must have at least three of the following changes: (a) restlessness or feeling keyed up or on the edge, (b) being easily fatigued, (c) difficulty concentrating or mind going blank, (d) irritability, (e) muscle tension, or (f) sleep disturbance. As with other mental health disorders, the symptoms must cause clinically significant distress or impairment in social, occupational, or other important areas of functioning (American Psychological Association, 2013).

Panic disorder is characterized by unexpected panic attacks and at least one of the attacks has been followed by at least one month of either persistent concern about having additional attacks or worry about additional panic attacks or their consequences, or a significant maladaptive change in behavior related to the attacks (American Psychological Association, 2013).

The decreased likelihood of emotional outcomes, such as depression or anxiety disorders resulting from the use of protective factors measure emotional resilience. Emotional resilience is considered a highly relevant domain to assess resilience in adolescents victimized by physical maltreatment. As noted previously, victimization may place adolescents at risk for developing depression and anxiety issues. Emotional problems (i.e. depression and anxiety) may interfere with the ability for individuals to develop successfully. Thus, the ability to cope with trauma without developing depression or anxiety indicates the existence of resilience. Given the existing literature regarding the high correlation of emotional disorders and maltreatment, emotional resilience is a highly appropriate resilience domain to examine in adolescents (Jaffee, 2007).

Behavioral resilience.

Behavioral resilience often is measured by the absence of a behavioral disorder (i.e., conduct disorder, oppositional defiant disorder, ADHD), absence of delinquency including criminal or behavioral problems or school-related issues, and lack of alcohol and substance use. As opposed to the over control of emotions, which is a central component to internalizing problems, externalizing behavioral problems are characterized by an under control of emotions. Some symptoms of the under control of emotions include difficulties with relationships, rule breaking, irritability, and belligerence (Achenbach & Edelbrock, 1978). Behavioral resilience in this current study will be measured by the negative relationship of the protective factors to negative behavioral outcomes. Thus, resilience is demonstrated by the ability for peer and parental support to protect against the risk of physical maltreatment.

Researchers consider behavioral resilience as a key domain in adolescents (Jaffee & Gallop, 2007; Lansford, Malone, Stevens, Dodge, Bates, & Pettit, 2010; Shonk & Cicchetti, 2001; Sternberg, Baradaran, Abbott, Lamb, & Guterman, 2006; Teisl & Cicchetti, 2006). Behavioral problems are associated with functional impairment in several areas of development, including academics, social competence, and a positive association with peer rejection (Masten, Roisman, Long, Burt, Obradovic, Riley, Boelcke-Stennes, & Tellegen, 2005). Behavioral issues are a strong predictor for maladjustment later in life including underachievement, lower high school graduation rates, and substance problems (Guttmannova, Szanyi, & Cali, 2007).

Behavioral resilience is important to include because of its salience to the adolescent developmental period (Arbona & Power, 2003; Keiley, Howe, Dodge, Bates,

& Pettit, 2001; Kim & Cicchetti, 2003; Lansford, Malone, Stevens, Dodge, Bates, & Pettit, 2006; Lerner & Steinberg, 2009; Shonk & Cicchetti, 2001; Sternberg, Baradaran, Abbott, Lamb, & Guterman, 2006; Teisl & Cicchetti, 2006). During adolescence, many begin to experiment with new behaviors and may turn to unhealthy coping methods such as alcohol and drugs (Lerner & Steinberg, 2009). The newfound independence associated with the adolescent developmental period may increase delinquency and other behavioral problems (American Psychological Association, 2002). Physically maltreated adolescents have an increased risk to exhibit behavioral issues. Adolescents may exhibit acting out behaviors following a traumatic experience. They may become aggressive following exposure to physical maltreatment as a result of modeling their behavior after their experiences (Sousa et al., 2011).

Behavioral resilience may be measured by symptoms of key behavioral disorders found in adolescents. Three behavioral disorders that will be considered in this study are conduct disorder, oppositional defiant disorder, and attention-deficit/hyperactivity disorder. Victimization of physical violence has been identified as a risk factor for these behavioral disorders (Arbona & Power, 2003; Keiley, Howe, Dodge, Bates, & Pettit, 2001; Kim & Cicchetti, 2003; Lansford, Malone, Stevens, Dodge, Bates, & Pettit, 2010; Lerner & Steinberg, 2009; Shonk & Cicchetti, 2001; Sternberg, Baradaran, Abbott, Lamb, & Guterman, 2006; Teisl & Cicchetti, 2006).

The first behavioral disorder, conduct disorder, is defined by “repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated, as manifested by the presence of three (or more) of the following criteria in the past 12 months, with at least one criterion present in the past

six months: (a) often bullies, threatens, or intimidates others; (b) often initiates physical fights; (c) used a weapon that can cause serious physical harm to others; (d) has been physically cruel to people; (e) has been physically cruel to animals; (f) has stolen while confronting a victim; (g) has forced someone into sexual activity; (h) has deliberately engaged in fire setting with the intention of causing serious damage; (i) has deliberately destroyed others' property; (j) has broken into someone's house, building, or car; (h) often lies to obtain goods or favors to avoid obligations; (i) has stolen items of nontrivial value without confronting a victim; (j) often stays out at night despite parental prohibitions, beginning before age 13; (k) has run away from home overnight at least twice while living in parental or parental surrogate's home; or (l) often is truant from school, beginning before age 13. These symptoms must cause clinically significant impairment" (American Psychological Association, 2013). Studies suggest maltreatment results in higher rates of conduct disorder (Cauffman, Feldman, Waterman, & Steiner, 1998; Fergusson, Lynskey, & Horwood, 1996; Kaplan, Pelcovitz, & Labruna, 1999; Lynskey & Fergusson, 1997; Steiner, Garcia, & Matthews, 1997).

The second behavioral disorder included, oppositional defiant disorder (ODD), is a "pattern of negativistic, hostile, and defiant behavior lasting at least six months during which four (or more) of the following are present: (a) often loses temper, (b) often is touchy or easily annoyed, (c) often is angry or resentful, (d) often argues with authority figures, (e) often actively defies or refuses to comply with requests from authority figures or with rules, (f) often deliberately annoys people, g) often blames others for his or her mistakes or misbehavior, or (h) has been spiteful or vindictive at least twice within the past 6 months" (American Psychological Association, 2013). A few studies suggest

maltreatment may be linked to ODD (Flisher, Kramer, Hoven, Greenwald, Alegria, Bird, Canino, Connell, & Moore, 1997; Merry & Andrews, 1994).

Lastly, attention deficit hyperactivity disorder (ADHD) is characterized by either inattention or hyperactivity/impulsivity. Inattention must include at least six of the following symptoms for six months that are "maladaptive and inconsistent with developmental level: (a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities; (b) often has difficulty sustaining attention in tasks or play activities; (c) often does not seem to listen when spoken to directly; (d) often does not follow through on instructions and fails to finish school work, chores, or duties; (e) often has difficulty organizing tasks and activities; (f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort; (g) often loses things necessary for tasks or activities; (h) often is easily distracted by extraneous stimuli; and (i) often is forgetful in daily activities. Hyperactivity and impulsivity must include at least six of the following symptoms: (a) often fidgets with hands or feet or squirms in seat, (b) often leaves seat in classroom or in other situations in which remaining seated is expected, (c) often runs about or climbs excessively in situations in which it is inappropriate, (d) often unable to play or engage in leisure activities quietly, (e) often is "on the go" or acts as if "driven by a motor," (f) often talks excessively, (g) often blurts out answers before questions have been completed, (h) often has difficulty awaiting his or her turn, or (i) often interrupts or intrudes on others. Some symptoms have to be present before the age of 7 (American Psychological Association, 2013). ADHD is associated with trauma (Cuffe, McCullough, & Pumariega, 1994, Famularo, Fenton, Kinscherff, & Augustyn, 1996; Merry & Andrews, 1994).

Additionally, physical abuse may place adolescents at an increased risk for substance use (National Institute on Drug Abuse, 2014). Substance use according to the 2015 *Monitoring the Future* study, the lifetime prevalence rate for marijuana for high school seniors is approximately 44.7%. The study found 4.0% of those seniors reported cocaine use and 5.9% use ecstasy. Approximately 64% of those seniors use alcohol with 20.6% binge drinking in the last 30 days (Monitoring the Future, 2015). Illicit drug use is associated with many harmful behaviors and can cause both short- and long-term problems; potential negative problems include engaging in risky sexual behavior, delinquency and crime, increased risk for depression, and problems in school including low attendance rates, poor academic performance, and increased likelihood of dropping out (Child Trends, 2013). In a 2012 study, illicit drug use among 12th graders was more prevalent among males than females (18% vs. 15%; Child Trends, 2013).

Wyman's (1992) Rochester Youth Development Study followed at-risk youth from age 13 into adulthood. Wyman found a history of physical abuse during adolescence was a significant predictor of violent offending and drug abuse in adolescence. Emery (2011) found maltreatment was related to child and adolescent behavioral problems (internalizing and externalizing), truancy, grade repetition, smoking, drinking, and use of marijuana. However, it should be noted that Emery's study did not focus solely on physical maltreatment.

In another study on maltreatment and behavioral problems, Hazen, Connelly, Kelleher, Landsverk, and Barth (2004) utilized the National Survey of Child and Adolescent Well-being dataset to investigate behavioral problems in maltreated children. This paper focused on children ages 4 to 14 years old (M = 8.64 years old). It excluded

children in out of home placements. Age was significantly related to delinquent behaviors with older adolescents more likely to engage in delinquent behaviors. Males were also more likely to exhibit externalizing behavior problems. It should be noted the sample population of this study focused more on children than adolescents. The study also did not specify maltreatment type. Adolescents physically maltreated might produce different findings than all maltreatment types grouped together.

Another study separated physical maltreatment from other types of maltreatment to determine risks for behavioral issues and other health-risk (e.g. substance use) issues. Leslie, James, Monn, Kauten, Zhang, and Aarons (2010) studied these issues in young adolescents in the child welfare system. The researchers utilized adolescents ages 11 to 15 years old from the first cohort of NSCAW. The prevalence for substance use was 19.5% for smoking, 8.2% marijuana, and 16.1% drinking alcohol. Males had a risk rate .63 times higher than that of females. Adolescents with a history of physical abuse had a risk rate 1.33 times higher than the rest of the at-risk sample.

Additional support for the increased risk of behavioral issues in physically maltreated adolescents was demonstrated by Wall and Kohl (2007) in a study on physically maltreated adolescents (ages 11 to 15 years old) from the first cohort of the National Survey of Child and Adolescent Well-being dataset. The majority of the sample reported no substance use (71%), 20% reported low levels of substance use, 3% reported moderate levels, and 6% reported high levels of use. Substance use following maltreatment was significantly predicted by conduct problems and lack of caregiver relatedness. Adolescents who were physically maltreated were more likely to report substance use than other types of maltreatment.

Summary.

Risk, by definition, increases the likelihood for negative outcomes. Physical abuse places adolescents at a higher risk for negative behavioral and emotional outcomes. However, protective factors may produce resilience and buffer the negative effects of risks. Resilience looks at the processes that allow one to successfully adapt in spite of risk factors (Doll & Lyon, 1998; Masten, 1994). Therefore, it is important to understand protective factors that allow successful adaptation following risks.

Protective Factors

Protective factors are defined as processes that interact with risk factors to moderate negative effects and may produce resilient outcomes (Jenson & Fraser, 2011; Kolar, 2011). The protective factors of parental support and peer support appear to have the most empirical support (Anderson & Bang, 2012; Arbona & Power, 2003; Asgeirsdottir, Gudjonsson, Sigurdsson, and Sigfusdottir, 2010; Bolger, Patterson, & Kupersmidt, 1998; Christiansen & Evans, 2005; Crosnoe, & Elder, Jr., 2004; DuMont, Widom, & Czaja, 2007; Flynn, Ghazal, Legault, Vandermeulen, & Petrick, 2003; Gewirtz & Edleson, 2011; Holister-Wagner, Reyes & Elias, 2011; Jain, Buka, Subramanian, & Molnar, 2012; Kim & Cicchetti, 2004; Kim & Cicchetti, 2006; Marsh, 2009; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009; O'Donnell, Schwab-Stone, & Muyeed, 2002; Salami, 2010; Sun & Stewart, 2012; Tiet, Huizinga, & Byrnes, 2009; Ward, Martin, & Distiller, 2007). These protective factors were found to have the most support in behavioral and emotional resilience of maltreated adolescents and likely to result in gender differences. As noted previously, parental and peer support are highly relevant to adolescent development. Additionally, these protective factors were chosen

because they have the most potential to produce change in behaviors and emotions through interventions. Thus, further examination of parental and peer support may benefit counselors working to promote resilience in maltreated adolescents.

Parental support.

Parent-child relationships that are characterized as supportive and caring with a child and at least one parent are found to protect against risk (Hartman, Turner, Daigle, Exum, & Cullen, 2009). A close bond with at least one parent is positively associated with resilience (Anderson & Bang, 2012; DuMont, Widom, & Czaja, 2007; Egeland & Erickson, 1990; Gewirtz & Edleson, 2011; Holister-Wagner, Reyes & Elias, 2011; Jain, Buka, Subramanian, & Molnar, 2012; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009; Sun & Stewart, 2012; Ward, Martin, & Distiller, 2007).

Parents who are warm and supportive may create an environment for the adolescent to feel safe and secure. This creates an environment that may buffer the effects of stress for the adolescent which decreases the likelihood of depression or anxiety (Scaramella, Conger, & Simmons, 1999). Parental support creates stability and can provide a sense of unconditional acceptance. This may help adolescents in their quest to develop a self-identity (Csikzentmihalyi, Rathunde, & Whalen, 1993). Conversely, maltreating parents have been found to interact less with their children and show less warmth (Burgess & Conger, 1978). Instead, maltreating parents often exhibit anger and conflict (Trickett & Susman, 1988). Caregivers in maltreating families tend to be unsupportive and have volatility in the home (Cicchetti & Howes, 1991). However, when victims of physical maltreatment still have parental support from at least one caregiver, it

has been found to significantly moderate risk (Hartman, Turner, Daigle, Exum, & Cullen, 2009).

The use of parental support as an important protective factor in maltreated adolescents has been demonstrated in several empirical studies. In a study providing support, Kim-Spoon, Haskett, Longo, and Nice (2012) studied positive parenting as a protective factor against adjustment problems among physically maltreated children. Data was collected longitudinally over three time points with a total of 95 children from preschool through first grade. The children all had a substantiated report of physical abuse prior to starting the study. Structural equation modeling was utilized to analyze the data. The findings support positive parenting as a protective factor in physically maltreated children. However, caution should be taken in interpreting the findings as 95 participants is considered a small sample size in structural equation modeling statistical techniques. Additionally, the sample included children not adolescents, which may limit the generalizability to the current study. Furthermore, the positive parenting measure utilized a self-report form, which may make it vulnerable to social desirability and other self-report biases. That is, it could be hypothesized parents would be less likely to admit negative parenting behaviors.

In a study on the effects of ethnicity on protective factors for physically maltreated children, Haskett, Allaire, Kreig, and Hart (2008) found parental sensitivity to be a protective factor. The participants included physically abused and non-abused children ages (M = 7.2 years old) and their parents. Participants were primarily Black/African American (69%) while the other participants were all Caucasian (31%). Children with a history of sexual abuse and parents with an untreated substance abuse

issue were excluded from the study. Parental sensitivity had a significant negative association with children's aggression and a positive association with children's prosocial behavior. The findings support parental sensitivity as a form of parental support as an effective protective factor among physically maltreated children. An advantage of the study is the focus on ethnic diversity and one specific form of victimization. However, measuring parental sensitivity in an observation setting may result in participants presenting themselves more positively. It should also be noted that the participants are children, not adolescents. Therefore, the findings are limited in generalizability to the current study.

Kim and Cicchetti (2004) studied the impact of mother-child relationship on child maltreatment and emotional and behavioral outcomes. The study included children, ages 7 to 12 years old (M = 9.18). The sample consisted of more boys than girls (64% to 36%). The study used structural equation modeling to assess the mother-child relationship. They tested the model longitudinally with internalizing and externalizing symptoms measures at Time 1 and Time 2 (i.e. two years later). More secure mother-child relationship quality was related to fewer internalizing and externalizing problems. The study demonstrated significant direct findings of mother-child relationship quality and internalizing and externalizing symptomatology as well as indirect effects through self-esteem and social competence. Additionally, no significant association between relationship quality and maltreatment was found in the study. This finding suggests no significant difference in the perception of mother-child relationship quality exists between maltreated and non-maltreated children. The study did not differentiate types of

maltreatment and a sample of adolescent victims of physical maltreatment instead of children could produce different findings.

Although Sunday, Labruna, Kaplan, Pelcovitz, Newman, and Salzinger (2008) did not examine parental support as a protective factor in resilience, their study is relevant to the current study as it provides additional background information on parental support in physically maltreated adolescents. They tested gender differences in physically maltreated adolescents' perceptions of parenting and family functioning. Participants included physically abused and non-abused adolescents. All participants were Caucasian and middle class. Physically abused children indicated they were closer to their mothers than to their fathers, a finding not significant in the comparison group. Physically maltreated female adolescents felt less close to both parents than all other groups. Additionally, physically maltreated children rated their families as less adaptive and cohesive. Forty percent of the physically maltreated adolescents rated their mothers as exhibiting optimal parenting; however, this percentage was significantly lower than their non-maltreated counterparts. It could be hypothesized that victimization could lower expectations of the non-perpetrator's parenting skills in comparison to the abuser, or parental victims may still exhibit optimal parenting behaviors. Although the study does not investigate parental support as a protective factor, it does provide some information on the complexity of parental support.

Although several studies investigated the role of parental support among maltreated children and adolescents, many gaps in the literature still exist. Parental support was found to protect against behavioral problems and depression in physically

maltreated children and adolescents. More studies are necessary to further understand and corroborate the findings.

Peer support.

Peer support effectiveness as a protective factor in physically maltreated adolescents is well supported in the literature (Crosnoe, Elder, & Jr., 2004; Jain, Buka, Subramanian, & Molnar, 2012; Marsh, 2009; O'Donnell, Schwab-Stone, & Muyeed, 2002; Salami, 2010; Sun & Stewart, 2012). Peer relationships have been linked to self-esteem among maltreated children. Bolger, Patterson, and Kupersmidt (1998) found better peer relationships were associated with higher self-esteem over time in children who experienced physical abuse. The children were second- to fourth-graders at the start of the longitudinal study. Physically maltreated children who indicated having a reciprocated best friend showed improved self-esteem over time. Physically maltreated children and chronically maltreated children indicated higher levels of friendship quality. This finding suggests physically maltreated children may turn to peers to cope with abuse. This study does not focus on adolescents or the resilience domains in the current study. However, it provides evidence for peer support as a protective factor and revealed higher levels of friendship quality in adolescents who were physically maltreated adolescents. It should be noted that the generalizability to the current study is limited.

Pepin and Banyard (2006) studied the role of social support from peers in developmental outcomes among child maltreatment survivors in first-year college students. Students were sampled from an introductory psychology course at a New England university. Students were surveyed prior to beginning college and at another point during their first year. Participants were approximately 18 years of age (M = 18.22,

SD =.47). The sample consisted primarily of Caucasians (96.5%). Perceived social support and child maltreatment measures were given at Time 1. Measures of developmental achievement, received social support, and neglect were provided at Time 2. Of the participants, 38.5% indicated physical abuse. Perceived social support was found to mediate the relationship between maltreatment and psychosocial development. Some measurement issues limit the generalizability of these results. Types of maltreatment were grouped together. It is unknown if physical abuse studied separately would have produced different findings on social support. The study focused on children, which differs from the current study's focus on adolescence. There were also measurement issues in the study. Specifically, perceived social support was taken at Time 1 while participants were living at home and received social support was taken at Time 2 while participants were attending the university. Additionally, psychosocial development is not one of the outcomes of interest in this current study.

Another study based on the data from the National Survey on Child and Adolescent Well-Being (NSCAW) examined the role of specific protective factors externalizing and internalizing behaviors and reading competence in maltreated children. Schultz, Tharp-Taylor, Haviland, and Jaycox (2009) analyzed the protective factors of social competence, adaptive functioning skills, and peer relationships among children who were 3 to 8 years old at the time of entry into the child protective system. The findings suggest children with higher levels of social competence are less likely to endorse internalizing and externalizing behaviors. Children with positive peer relationships are less likely to exhibit externalizing behaviors. All forms of maltreatment

were grouped together. It is unknown if separating physical maltreatment would affect the outcomes. The study supports the effectiveness of peer relationships as a protective factor in resilience. While this study provided evidence for the protective factor of peer support against internalizing and externalizing problems, the study focused on children and not on adolescents. The focus on a younger age group in this sample compared to adolescent sample in the current study may limit the generalizability of its findings to the current study.

Tajima, Herrenkohl, Moylan, and Derr (2010) analyzed data from the Lehigh Longitudinal Study to examine the effects of peer communication and peer support as protective factors in children exposed to domestic violence. Tajima and colleagues used data from adolescents (M = 18.23 years old) and assessed across three waves of the study. A majority of the sample were Caucasians (81.5%). The study measured peer support through three subdimensions: peer trust, peer communication, and peer alienation. Peer communication and peer trust moderated the relationship between exposure to domestic violence and depression and running away from home. Peer support was not a significant moderator between exposure to domestic violence and youth violence. Caution should be taken in generalizing the results. The majority of the sample is Caucasian making generalizations to other races and ethnicities limited. The self-report measures for perceived peer support may skew the data. Although the study provided evidence against peer support as a protective factor, the current study hopes to fill in the gap in the literature with a more diverse sample.

Young, Berenson, Cohen, and Garcia (2005) studied the interaction between perceived parental support, peer support, and depression in a sample of adolescents ages

11 to 16 years old at Time 1. Time 2 occurred two years later. The investigation occurred between 1983 and 1986. Researchers found parental support moderated the relationship between peer support and depression symptoms and diagnosis. Peer support was protective when the participants perceived high levels of parental support, however, not in adolescents with low levels of parental support. Although the study provides some information on the role of peer support, it should be noted the sample is not based on any type of trauma and it does not investigate resilience. However, the study provides information of the complexity of peer support as a protective factor.

In a recent study by Ban and Oh (2016), found similar evidence of the importance of peer support as a protective factor. The researchers used a large sample of adolescents in Korea to examine the effect of child physical abuse on emotional and behavioral problems. The study found child abuse had significant negative effects on the adolescents' emotional and behavioral functioning. However, the researchers showed peer support worked as an effective mediator between physical abuse and emotional and behavioral problems, thus evidencing peer support as a significant protective factor in resilience.

Additionally, Guerra, Pereda, Guilera, and Abad (2016) observed social support as a significant mediator against victimization. The study examined the relationship between polyvictimization, non-productive coping strategies, and internalizing symptoms in adolescents. The study focused on the mediating variable of social support. Social support effectively mediated the relationship between polyvictimization and internalizing problems. To be noted, the study focused on multiple types of victimizations instead of

solely on physical maltreatment. Thus, the inclusion of only physically maltreated adolescents in the current study may produce different findings.

Peer support was determined to be an effective protective factor against maltreatment. In maltreated youth, they were less likely to exhibit externalizing behaviors. In youth exposed to domestic violence, peer communication moderated the relationship between exposure and depression, and running away from home.

Summary.

Protective factors minimize the negative outcomes associated with risk (Kolar, 2011). Parental support and peer support are expected to buffer the effects of physical maltreatment. Physically maltreated adolescents will likely endorse fewer behavioral and emotional problems with parental and peer support. These protective factors have empirical support as effective protective factors in physically maltreated adolescents. The risk factor of physical maltreatment was chosen based on an extensive literature review on maltreated adolescents and the proximity of the factors according to ecological-transactional model. Additionally, these factors may be used by counselors to promote resilience.

Gender

Literature on gender and resilience is limited (Hartman, Turner, Daigle, Exum, & Cullen, 2009). The existing studies on gender differences provide some evidence for differing resilience processes for females. Males and females are commonly socialized differently and thus, differences in risk and protective factors may be expected between genders. Females are expected to exhibit fewer externalizing behaviors and more internalizing problems than males (Achenbach, 1979; Lewisohn, Hops, Roberts, Seeley,

& Andrews, 1993; Reimer, 2002). Additionally, females are expected to rely on interpersonal protective factors of peer support and parental support more than males (Hartman, Turner, Daigle, Exum, & Cullen, 2009). Females may have additional difficulties during adolescence due to highly visible physical changes that occur during adolescence and the need for peer acceptance (Haynie, 2003). Adolescence poses additional unique risks and difficulties, thus suggesting an increased importance of studying resilience in adolescent females.

However, additional studies are needed to further substantiate gender differences existing in resilience. The lack of research on gender and resilience is surprising given previous research suggesting gender differences may exist in adolescents. More research is necessary to strengthen the theory of gender differences in protective factors and resilience.

Gender differences in resilience.

DuMont, Widom, & Czaja (2007) provided evidence that females are more likely to exhibit resilience. They examined resilience in survivors of childhood physical abuse, sexual abuse, and neglect. The study utilized 676 documented cases of abuse and a control group of matched non-maltreated children during the years 1967 to 1971 and follow-up reports through 1995. The mean age of the participants at the follow-up interview in 1995 was 29.1 years old (SD = 3.8). The gender of the sample was half female (50.4%). Resilience was measured by eight domains: (a) education, (b) psychiatric disorder, (c) substance abuse, (d) official reports of arrests, (e) self-reports violent behavior, (f) homelessness, and (g) social activity. Resilience was characterized by being successful in at least six of the eight domains. Participants that exhibited resilience lacked

emotional and behavioral problems. The study found females were more likely to be resilient in adolescence. Caution should be taken in interpreting the findings as the study included other types of maltreatment in addition to physical abuse and included children, adolescents, and young adults throughout the span of the longitudinal study.

In an additional study supporting female gender differences in resilience, Sun and Stewart (2012) suggest that females are more likely to exhibit resilience. The cross-sectional study consisted of a self-report survey provided to children in Australia. The sample was composed of children ages 8- to 12- years old (M = 10.04). Approximately half of the sample was female (51.18%). While significant gender differences were found in resilience, it is hypothesized interpersonal related factors, such as socio-emotional factors that measured resilience in this study, are more salient for females than males. Females scored higher in communication, empathy, help-seeking, and goals and aspirations. Females were more likely to be resilient. The importance of interpersonal factors for females will be discussed later. These findings might be influenced by the gender differences in the salience of socio-emotional factors. Caution should be taken in considering the findings of the study due to the limitations as a result of the lack of multidimensionality in the measurement of resilience.

Gender differences in risks.

No significant gender differences were found in prevalence of physical maltreatment. Boys and girls are equally likely to experience maltreatment. Approximately 48% of victims are females, while 51% are males (Child Welfare Information Gateway, 2015).

Gender differences in behavioral and emotional functioning.

Females may be more likely to endorse internalizing problems and less likely to exhibit externalizing behaviors than males (Achenbach, 1979; Lewisohn, Hops, Roberts, Seeley, & Andrews, 1993; Ostrov & Keating, 2004; Reimer, 2002). Reimer (2002) conducted a literature review on gender, risk, and resilience in middle school aged children. The meta-analysis found most studies show females exhibit more internalizing behaviors and fewer externalizing behaviors than males (Reimer, 2002). Females are four times less likely than males to engage in delinquent behavior (Jonson-Reid & Barth, 2000). Gender differences were evident in the risks and protective factors of delinquency (Hartman, Turner, Daigle, Exum, & Cullen, 2009). This suggests that adolescent behavioral resilience may need to be analyzed and understood within each gender. Internalizing and behavioral issues in females may utilize different psychological, physiological, and sociological pathways.

One example of a study that demonstrated lower rates of externalizing behaviors was Ostrov and Keating (2004) study on gender and aggression. The study found females exhibited fewer physical and verbal aggression than males, but more relational aggression. This study was conducted on a sample of 48 preschool children (M = 64 months, SD = 6.77 months). The sample had equal number of male and female participants. The majority of the sample were classified as Caucasian (90%). Preschool children's aggression may present differently than adolescents. The difference in the sample age may limit the generalizability to this current study. Additionally, the sample size is smaller than the current study and lacks diversity in the sample, which may result in lack of generalizability to the current study. The study does provide support for lower

levels of one type of externalizing problem in females and adds background to the complexity of gender differences in behavioral issues.

Maschi, Morgen, Bradley, and Hatcher (2008) found a direct relationship between maltreatment and externalizing behaviors in male children, whereas internalizing behaviors mediated the relationship in girls. The researchers conducted a secondary data analysis of the Longitudinal Pathways to Resilience among Maltreated Youth data set. Children were between the ages of 5 and 11 years old (M = 7.5, SD = 1.5). More boys than girls were included in the sample (63% versus 37%). Child behavior checklist measured internalizing and externalizing behaviors. Gender moderated the relationship between maltreatment and internalizing and externalizing behaviors. The indirect relationship between internalizing and externalizing behaviors in maltreated girls could suggest that females internalize their trauma initially, but may lead to externalizing behaviors if left untreated. The study focused on children, not adolescents limiting its generalizability to the current study. Additionally, the sample consisted of primarily boys, which may affect the gender findings, especially when the focus of the current study is on females.

Gore-Felton, Koopman, McGarvey, Hernandez, and Canterbury (2002) provided further evidence to suggest that female adolescents are more likely to present with internalizing problems. Participants consisted of maltreated adolescents (M = 15.8 years old, SD = 1.25). Participants were recruited from the juvenile correctional system. The majority of the sample was male (84%). Internalizing and externalizing behavioral problems were assessed by the Youth Self Report (YSR). Maltreatment status was determined by their client profile database. Females were more likely to endorse

internalizing problems than males. This study also contained group differences in the sample size between females and males. The discrepancy in sample sizes for gender and the additional risks of a juvenile correctional facility may limit the validity of the findings on gender differences.

Another study found gender differences in behavioral issues in adolescents victimized by physical abuse. Females were more likely than males to engage in delinquent behaviors. A study conducted by Grogan-Kaylor, Ruffolo, Ortega, & Clarke (2008) utilized the National Survey of Child and Adolescent Well-being (NSCAW) dataset to examine behavioral problems in maltreated children. The sample included adolescents ages 11 to 14 years old (M = 12.7). Parental monitoring and parental support relationship were negatively associated with delinquent behaviors. It should be noted that the analysis only included younger adolescents and thus, limits the generalizability to the current study.

Logan-Greene, Nurius, Herting, Hooven, Walsh, and Thompson (2011) suggest that although males have historically been more prone to exhibit externalizing behaviors like perpetrating violence, females are engaging in more externalizing behaviors and acts of violence. The study examined risk and protective factors for externalizing violent behavior among at-risk youth. The study included adolescents at-risk for school dropout. Participants ranged from 14 to 21 years old (M = 15.98). While females had lower levels of violence and externalizing behaviors than males, no significant interactions with gender were found. Thus, it appears that risk and protective factors acted in similar ways in males and females in this particular study. However, one noteworthy finding was that females in the study reported lower levels of peer support. This finding is contrary to

other previous studies suggesting adolescent females endorse higher levels of peer support (Colarossi & Eccles, 2000; Dubois & Hirsch, 1990; Sun & Stewart, 2012). Given peer support is expected to be a significant protective factor for females, the lack of self-reported peer support for females may influence the findings regarding gender differences in behavioral resilience.

While adolescent females have been shown to exhibit fewer externalizing behaviors than males, females appear to be more at risk for internalizing problems. Research has consistently shown depression to be higher in adolescent girls than adolescent boys (Jenkins, Goodness, & Buhrmester, 2002; Nolen-Hoeksema & Girgus, 1994; Wade, Cairney, & Pevalin, 2002). In 2011, female adolescents had a rate of depression of 12.1% compared to 4.5% for males. Additionally, females were more likely than males to have had a major depressive episode with severe impairment in the past year (8.3% vs. 3.2%; Child Trends, 2013). The Chicago Longitudinal Study found females were 15% more likely to be depressed at 16 years old (Smokowski, Mann, Reynolds, & Fraser, 2004). Another study suggests the incidence and prevalence rates in adolescent girls to be twice as high as adolescent boys (Jenkins, Goodness, & Buhrmester, 2002).

In a study across three different countries (U. S., Canada, and Great Britain), Wade, Cairney, and Pevalin (2002) reported gender differences in adolescent depression beginning by age 14 and utilized three diverse measures in longitudinal studies. The measures were the Canadian National Population Health Survey, British Youth Panel, and the National Longitudinal Study of Adolescent Health. The findings were consistent in demonstrating the gender gap of depression starting at age 14 across all three countries

(U.S., Canada, and Great Britain) and measures. Females had higher incidents of depression in all three countries.

Gender differences in protective factors.

Gender may play a role in the strength of specific protective factors. Females may be affected more by interpersonal protective factors than boys (Hartman, Turner, Daigle, Exum, & Cullen, 2009). Females are typically seen as more interpersonally focused than males (Gilligan, 1982; Ehrensaft, 2005). The hypothesized interpersonal focus of females may be explained by Gilligan's "ethic of care" concept. She theorizes females may be socialized to utilize an "ethic of care" and focus on the importance of relationships to meet their needs. Her theory of "ethic of care" suggests females have socially constructed gender roles to value relationships and care. Although Gilligan's theory focuses on the value of relational ethics and feminism, the theory provides basic support for the importance and value of interpersonal relationships for females. Therefore, it's expected that the strongest protective factors for females would be interpersonally related (i.e. peer relationships or parental support; Hartman, Turner, Daigle, Exum, & Cullen, 2009; Sun & Stewart, 2007). Girls cope more through utilization of social support and social resources than their male counterparts (Sun & Stewart, 2007).

The association between females and interpersonally related protective factors was revealed in a cross-sectional study on a large sample of children in Australia (Sun & Stewart, 2007). Protective factors were assessed by the Protective Factor Scale from the California Healthy Kids Survey. The resilience scale was adapted from the same survey. Females were more likely to endorse interpersonal protective factors. They were also

found to be more likely to exhibit resilience. Female participants reported higher scores on protective factors of parental support, teacher support, adults in community support, and peer support (Sun & Stewart, 2007). Frydenberg and Lewis (1993) also suggested girls may use social support and social resources to cope with daily stressors. Thus, girls may be more likely to use these resilience protective factors more than boys (Hampel & Petermann, 2005).

Further, in a study on child abuse and adult depression, Powers, Ressler, and Bradley (2009) reported gender differences in the effect of abuse on depression and protective factors. While they found females with a history of child abuse were more likely to endorse higher levels of depression as adults, gender differences existed in protective factors. The researchers found family and peer support were more protective against adult depression for females than males. The study consisted of participants who were predominately low SES and recruited from medical clinics at a non-profit healthcare system. The participants were adults at the time of the study (M = 43 years old). Approximately one-fourth of the sample endorsed moderate to severe levels of childhood physical abuse. Gender differences between protective factors and type of maltreatment were not studied. It should be noted that it was a retrospective study wherein participants were adults at the time of the study. Because resilience is not considered to be stable, caution should be taken when interpreting the findings.

Folger and Wright (2013) studied gender differences in family support following child maltreatment. Participants were students enrolled in psychology courses at a Midwestern university. The participants were primarily Caucasian (91.9%). The mean age of participants was 20.36 years old (SD = 4.58). The study found women reported

fewer aggressive behaviors than men when receiving high levels of family support. The study is limited in the generalizability as it is a fairly homogenous sample and only college-aged students.

Summary.

Female gender differences exist in studies on protective factors, emotional and behavioral problems, and resilience (Achenback, 1979; DuMont, Widom, & Czaja, 2007; Hartman, Turner, Daigle, Exum, & Cullen, 2009; Jenkins, Goodness, & Buhrmester, 2002; Lewisohn, Hops, Roberts, Seeley, & Andrews, 1993; Nolen-Hoeksema & Girgus, 1994; O'Brien, Margolin, John, & Krueger, 1991; Reimer, 2002; Sun & Stewart, 2012; Wade & Cairney, 2002). According to the few existing studies, females are expected to be more affected by interpersonal protective factors (i.e. parental support and peer support) and higher likelihood of exhibiting resilience (DuMont, Widom, & Czaja, 2007). A gender effect on outcomes prior to the influence of the resilience process is expected. Specifically, females are more likely to endorse emotional problems, but less likely to exhibit behavioral issues (Achenback, 1979; Jenkins, Goodness, & Buhrmester, 2002; Lewisohn, Hops, Roberts, Seeley, & Andrews, 1993; Nolen-Hoeksema & Girgus, 1994; O'Brien, Margolin, John, & Krueger, 1991; Reimer, 2002; Wade & Cairney, 2002). A better understanding of the different processes that exist for adolescent females in resilience is necessary. Additional studies are needed to substantiate the aforementioned findings suggesting gender differences in resilience. Specifically, the findings suggest females may be more likely to exhibit internalizing problems. Additionally, it can be hypothesized that interpersonal protective factors will more effectively moderate the risk factor of physical maltreatment in emotional and behavioral resilience for females.

Therefore, if females utilize protective factors of peer support and parental support they may be more likely to exhibit resilience. Additional studies are warranted to investigate the hypotheses in physically maltreated adolescents.

The findings in the literature suggest gender differences exist in the resilience process. Specifically, females may exhibit fewer externalizing behaviors and more internalizing problems (Achenbach, 1979; Lewisohn, Hops, Roberts, Seeley, & Andrews, 1993; Reimer, 2002). Another key finding in research on gender differences in resilience is females may be more likely to be influenced by the interpersonal protective factors of parental and peer support (Hartman, Turner, Daigle, Exum, & Cullen, 2009; Sun & Stewart, 2007). The research question will be assessed through comparing females to males through mediation and group code analysis techniques. The interpretations of findings will focus on gender differences in females.

Research Question

Research Question:

Is the relationship between the protective factors of peer and parental support and resilience in physically maltreated adolescents stronger in females?

Two models have been developed to test the research question. The first hypothesized model proposes the latent variables of peer and parental support will protect against physical maltreatment and result in lower levels of emotional and behavioral problems (see Figure 1). The second hypothesized model differs in that it combines emotional and behavioral problems into one latent construct of negative outcomes (see Figure 2). The second model also suggests peer and parental support will protect against physical maltreatment, but will result in lower levels of negative outcomes overall. The

two hypothesized models will be tested through mediation analysis including females only, and through group code analysis approach to examine differences in the model between females and males with the focus on females.

Hypotheses:

The null hypothesis is that the model is not a good fit. The indicators do not adequately measure the latent variables of peer support, parental support, behavioral resilience, and emotional outcomes. There is no correlation between emotional and behavioral outcomes. Physical maltreatment does not predict emotional and behavioral problems in adolescents.

In regards to peer support, the null hypotheses are as follows: Peer support does not predict fewer emotional problems in physically maltreated adolescents. Peer support does not predict fewer behavioral problems in physically maltreated adolescents. Peer support does not predict overall resilience as measured by fewer emotional and behavioral problems in physically female maltreated adolescents.

In regards to parental support, the null hypotheses are as follows: Parental support does not predict fewer emotional problems in physically maltreated adolescents. Parental support does not predict behavioral problems in physically maltreated adolescents. Parental support does not predict overall resilience as measured by fewer emotional and behavioral problems in physically maltreated adolescents. No significant gender differences found.

The primary hypothesis is the second model (see Figure 2) will be the best fit. Measuring resilience in one overall resilience will be a better fit. It is hypothesized combining the two domains of resilience will be a better fitting model as females are

expected to exhibit fewer behavioral problems. The inclusion of dual domains of resilience is expected to reduce the strength of the model as the path to behavioral problems should be weaker.

The secondary hypothesis is that the model will be a better fit for females than males. The interpersonal protective factors will result in a better fitting model for females.

Thirdly, it is also hypothesized that the indicators adequately measure the latent constructs of peer support, parental support, behavioral resilience, and emotional resilience. Emotional and behavioral resilience, as measured by fewer emotional and behavioral problems, adequately measures the concept of overall resilience in the second model.

In the first model measuring the outcomes of behavioral and emotional problems separately, it is expected behavioral and emotional problems will covary. According to developmental theory and developmental cascades, problems in one area of development is expected to have negative consequences for other areas of development. Thus, exhibiting one negative outcome may make it likely to exhibit other problems.

Fourth, physical maltreatment will predict emotional and behavioral problems in the first model and overall emotional and behavioral problems in the second model. It can be suggested the path between physical maltreatment and emotional problems will be stronger than the path to behavioral problems. Similarly, physical maltreatment is expected to predict overall problems in the third model better than behavioral problems in the first model. While research has shown females are more likely to endorse emotional

problems, physical maltreatment is expected to produce the negative consequences of both emotional and behavioral problems as found in the literature.

In regards to the peer support construct hypotheses, peer support will predict emotional resilience in physically maltreated adolescents. It is expected that peer support will show a negative relationship with emotional problems. Peer support will predict behavioral resilience in physically maltreated adolescents through exhibiting a negative relationship with behavioral problems. Peer support will predict overall resilience in physically maltreated adolescents. The second model (see Figure 2) is predicted to exhibit a negative path from physical maltreatment to overall emotional and behavioral problems.

In regards to parental support latent variable hypotheses, parental support will predict emotional resilience in physically maltreated adolescents through a negative relationship between parental support and emotional problems. Parental support will predict behavioral resilience in physically maltreated adolescents. It is expected parental support will be negatively related to behavioral problems. Parental support will predict overall resilience in physically maltreated adolescents in the second model. Parental support will predict fewer overall behavioral and emotional problems.

It is hypothesized gender differences will be found in the relationship between the risk factor physical maltreatment and emotional and behavioral problems. The model based on theory expects females to exhibit higher levels of internalizing problems and lower levels of behavioral problems. Thus, we expect to replicate this finding in this current study.

It is also hypothesized gender differences will be found in the model of the mediating effect of the protective factors (parental support and peer support) and overall resilience as measured by the combination of emotional and behavioral resilience. The model will be a better fit for females than the overall model. Gender differences will be found in the model of the mediating effect of the protective factors (parental support and peer support) and overall resilience as measured by the negative relationship with overall emotional and behavioral problems. The model will be a better fit for females than males.

Chapter 3: Methods

The current study is a secondary data analysis of a nationally representative longitudinal dataset. This chapter provides an overview of the National Survey of the Child and Adolescent Well-being (NSCAW) dataset and the statistical methods utilized in the study.

Data Source

The data for the current study was obtained from the restricted release version of the National Survey of Child and Adolescent Well-being (NSCAW). NSCAW is a nationally representative study with children and adolescents in five waves selected from youth in the child welfare system in the United States. This dataset was sponsored by the Office of Planning, Research and Evaluation, Administration for Children and Families Act (ACF), U.S. Department of Health and Human Services. Congress authorized it with the purpose of assessing the well-being of children involved in the welfare system. This data set focuses on children and adolescents' well-being including their health and physical well-being, social functioning, academic achievement, mental health, and behavioral adjustment (National Data Archive on Child Abuse and Neglect, 2012).

The national longitudinal two-wave study utilized a clustered two-stage stratified sampling design. The first stage divided the United States into nine sampling strata. The second stage randomly selected primary sampling units (PSU) from the nine sampling strata. PSUs were geographic areas served by one child protective service agency. The sample was stratified giving a larger chance to PSUs with higher caseloads. An equal number of children were sampled within each PSU. The child or adolescent, former caregiver, current caregiver, caseworker, and teachers were surveyed. Following the selection of the sample, the field representatives mailed a personalized introduction letter and question-and-answer brochure to each caregiver. The field representatives followed up with telephone calls or scheduled a home visit if preferred by caregiver.

The field representatives were required to present photo ID badges, a project authorization letter, a confidentiality agreement, and a copy of NSCAW's Federal Certificate of Confidentiality. Field representatives were trained on informed consent procedures. The consent forms explained the procedure for sample selection, purpose of the study, the study's sponsorship, the data collection procedures and types of interview questions, approximate length of the survey, risks and benefits of participation in the study, and data confidentiality. Children age 7 years old and older were also asked for their consent to participate in the interview.

The second cohort began data collection with Wave I from March 2008 to May 2009, Wave II between October 2009 to December 2010, and Wave III between June 2011 and July 2012. Wave 1 data was collected between 2 and 6 months after the close of the CPS investigation. The current study used data from Wave 1 of the second cohort.

Participants

The current dataset consists of 1,054 adolescent participants in Cohort II. SPSS was utilized to determine descriptive of the sample population. The final sample of participants included in the analysis were 374 adolescents, aged 11 to 17.5 years old (M = 13.68, SD = 1.85). The final sample was created by the removal of non-physically maltreated participants, non-adolescents (children under 11 years old or over 17.5 years old), and individuals in foster care or out of home care. Two participants were removed for violations of multivariate outliers. Of the participants, 39.3% were male (n = 147) and 60.7% were female (n = 227). The participants reported their ethnicities as following: 11.8% Native Indian/Alaskan, 24.9% African American, 56.7% White, 4.5% Asian/Hawaiian/Pacific Islander, and 2.1% did not indicate their ethnicity. Hispanic/Latin American origin was asked separately. Approximately 23.5% of the sample indicated they were of Hispanic/Latin American origin with the breakdown of the following: 15.2% Mexican/Mexican American/Chicano, 3.7% Puerto Rican, and 4.8% other type of Hispanic origin. See Table 1 for the sample characteristics. Additional details on the sample (i.e. SES of the families, siblings, and parental marital status) were unable to be included due to missing data on those items in the majority of the cases. Geographic locations were not included in the dataset for confidentiality reasons.

Table 1.

Characteristics of the Sample

	Current Sample		Adolescent Sample		Full Dataset	
Characteristics	*N*	%	*N*	%	*N*	%
Gender						
Males	147	39.3	471	44.7	3,017	51.4
Females	227	60.7	583	55.3	2,855	48.6
Age						
11	64	17.1	170	16.1	--	--
12	56	15.0	156	14.8	--	--
13	53	14.2	165	15.7	--	--
14	67	17.9	166	15.7	--	--
15	59	15.8	167	15.8	--	--
16	49	13.1	164	15.6	--	--
17	26	7.0	66	6.3	--	--
Race/Ethnicity						
Native Indian/Alaskan	44	11.8	124	11.8	487	8.3
Asian/Hawaiian/Pacific Islander	17	4.5	48	4.6	197	3.4
Black	93	24.9	309	29.3	2,032	34.6
White	212	56.7	539	51.1	2,993	51.0
Refused/Don't know	8	2.1	34	3.2	163	2.8
Hispanic Origin						
Not Hispanic or Missing	286	76.5	800	75.9	4,258	72.5
Mexican/Mexican American/Chicano	56	15.0	153	14.5	1,055	18.0
Puerto Rican	14	3.7	35	3.3	205	3.5
Other Hispanic	18	4.8	66	6.3	354	6.0
Primary Caregiver						
Biological Mother	304	81.3	591	56.1	2,971	50.6
Biological Father	45	12.0	69	6.5	259	4.4
Grandparent	6	1.6	82	7.7	504	8.6
Other Family Member	2	0.5	64	6.1	315	5.4
Adoptive Parent	8	2.2	22	2.1	55	0.9
Step-parent	7	1.9	18	1.7	34	0.6
Other	2	0.5	63	6.0	102	1.7
Foster parent	0	0	145	13.7	947	16.2
Missing	0	0	0	0	685	11.6

Notes. Current sample excluded children, participants in foster care, and two for multivariate outlier violations. Current sample only included physically maltreated adolescents. Current sample $N = 374$. Adolescent sample characteristics were based off

characteristics of the sample prior to removal of exclusion criteria. Adolescent sample *N* = 1,054. Full dataset characteristics were based on the full NSCAW dataset of children and adolescents. Full dataset *N* = 5,872. Age of full dataset is same as the adolescent sample and not included in table.

Summary.

The sample was not as diverse in terms of ethnicity as expected. A decrease in diversity of the sample occurred when narrowing the sample to physically maltreated adolescents for this study. Considerably more females are included in this sample than males. This large of a gap was also not found in the original dataset. The percentage of female population increased when narrowing to this sample population. The examination of gender differences in the current study intends to focus on females. Thus, the increased quantity of females is preferred over the alternative of a larger population of males than females in the dataset. Age of the sample is diverse, ranging from 7.0 to 17.9% per year of age in the current sample of adolescents.

Analytic Approach

The statistical technique chosen to best answer the research questions in the current study was structural equation modeling (SEM). SEM is a statistical technique developed to be largely confirmatory instead of exploratory. SEM allows testing of complex relationships. It differs from regression as it assumes error (Schumacker & Lomax, 2010). The primary goals of SEM are to assess and support patterns of relationships among variables in a hypothesized model and explain as much variance as possible (Marcoulides & Schumacker, 1996). SEM identifies the amount of variance in dependent variables that may accounted for by the independent variables in the hypothesized models (Schumacker & Lomax, 2010). The extensive literature review

provided the theory for the models which fit the standards of confirmatory factor analysis. The literature review provided the theory of the most salient protective factors and outcomes to best measure resilience in maltreated adolescents. SEM was used to determine if the hypothesized models are the best fitting models. Mediational analysis (see Figures 1 and 2) and group code analysis techniques of structural equation modeling was conducted on the first and second hypothesized models.

The hypothesized models meet the requirements of confirmatory factor analysis structural equation modeling in that the research hypothesis is based on literature, the sample size of the NSCAW appears sufficiently large enough, and includes validated measurement instruments (Teo, 2013). The current model is considered a SEM rather than a path analysis diagram due to the inclusion of latent variables versus only manifest variables. It can be considered confirmatory (CFA) rather than exploratory factor analysis (EFA) in that the hypothesized model is specified (e.g. number of factors, pattern of relationships) and is based on theory (Gallagher & Brown, 2013).

According to SEM, measured or indicator variables are those that are directly observed and are represented by rectangles in the model. Measured variables are often referred to as manifest or indicator variables. Latent variables are not directly measured, but are quantified by multiple indicator variables. Latent variables are the "factors" in factor analysis. Latent variables are represented by ellipses/circles in the model diagrams. SEM includes error (i.e. observed variances) and disturbance (i.e. latent variance). Disturbances are symbolized with "d" and a circle. Disturbances may include important independent variables that may have been left out of the model. Error terms are noted with "e" in a circle and assumed to exist for every variable. Indicating correlations

between error terms suggest that it is expected that the measurement error for the two items are related to each other. One-headed arrows signify direction and relay the hypothesized causes to effects. Two-headed arrows represent non-causal covariation between elements of the model. Exogenous variables are considered the independent variables and are not influenced by other variables. Dependent or variables influenced by other variables in the model are considered endogenous variables. A path diagram is a graphical illustration of a theory relating measured and latent variables. The specification of the model is also important because it shows the hypothesized model based on the theory (Mueller & Hancock, 2010).

Structural equation modeling requires two phases that form a structural equation model: measurement and structural. The measurement models were assessed first. It focused on latent variables and its indicators to determine if the hypothesized relationship between the indicators and latent variables is appropriate. Measurement models include all items and variables that load onto each latent variable and their relationships, variances, and errors. It removes the structural relationship by allowing latent variables to temporarily covary freely. If model is misspecified, parameter estimates are inaccurate. The Lagrange Multiplier Test (LM) may be used to determine if the model fit would improve through estimating instead of fixing an additional parameter. The Wald Test may be employed to decide whether deleting a parameter would significantly improve or worsen the fit of the model. At this stage remediation of data-model misfit may occur. The structural portion of the model is the focus of the study and represents the main theory to be tested. This includes the path diagram with the hypothesized structural relations. The two-phase approach allows any data misfit in the structural equation to be attributed to the

hypothesized structural model since the measurement model has already been determined a good fit or modified to fix any misfits (Hancock & Mueller, 2010; Mueller, 1996).

In addition to the two phases of SEM, several basic steps are recommended to correctly employ structural equation modeling techniques. First, relevant theory must be reviewed to develop a research hypothesis based on existing literature. Second step is to specify a model based on theory. Third, model identification was determined through estimating the number of parameters in the model and the number of degrees of freedom to determine if the model is under-identified, over-identified, or just-identified. Next, preliminary descriptive statistical analyses need to be conducted to understand if the data meets the assumptions of SEM and if necessary, transform the data. The model parameters should then be estimated and assess the model fit. Finally, the last step is to interpret the results (Mueller & Hancock, 2010; Schumacker & Lomax, 2010). These steps will all be discussed in greater detail later this chapter.

Model specification.

The model was conceptualized based on the theory presented in the first two chapters. The first proposed model utilizes confirmatory factor mediation analysis to test the protective factors (peer and parental support) on physical maltreatment and emotional and behavioral problems separately (See Figure 1). The hypothesized model is considered a recursive model as it suggests causation occurs in one direction. In the hypothesized measurement model, physical maltreatment effects peer support, parental support, emotional, and behavioral resilience. Peer support is gauged by satisfaction with peer relations, peer involvement and support, and lack of negative peer influence. Parental support is measured by perceived parental support, parental involvement, closeness to

caregiver, and time spent with caregiver. Resilience in this model is measured by the lack of emotional and behavioral issues. Emotional outcomes latent variable is measured by the indicator variables from the internalizing subscales of YSR, CBCL, CDI, and TSCC. Behavioral outcomes latent variable is measured by the indicator variables of the externalizing subscales of YSR, CBCL, and SRD. The structural model had paths from physical maltreatment to all four latent variables and positive pathways from peer and parental support to emotional and behavioral resilience. This model suggests the existence of mediation from the protective factors. This model was utilized to test part of the first research question. The second proposed model utilizes a similar approach except combined emotional and behavioral resilience to test overall resilience (See Figure 2). The latent variable of overall resilience was measured by the total score of emotional resilience and total score of behavioral resilience. This model also assessed the first and second research hypothesis. The second question used a group code anlaysis approach. In all models, the variance of the latent variable was fixed to 1.0 in order to standardize the factor variance. This method was chosen as it results in a standardized solution. Issues with the measurement model were fixed through respecification as the changes are based on theory and followed the rules for fixing misspecification (Hancock & Mueller, 2010; Mueller & Hancock, 2006).

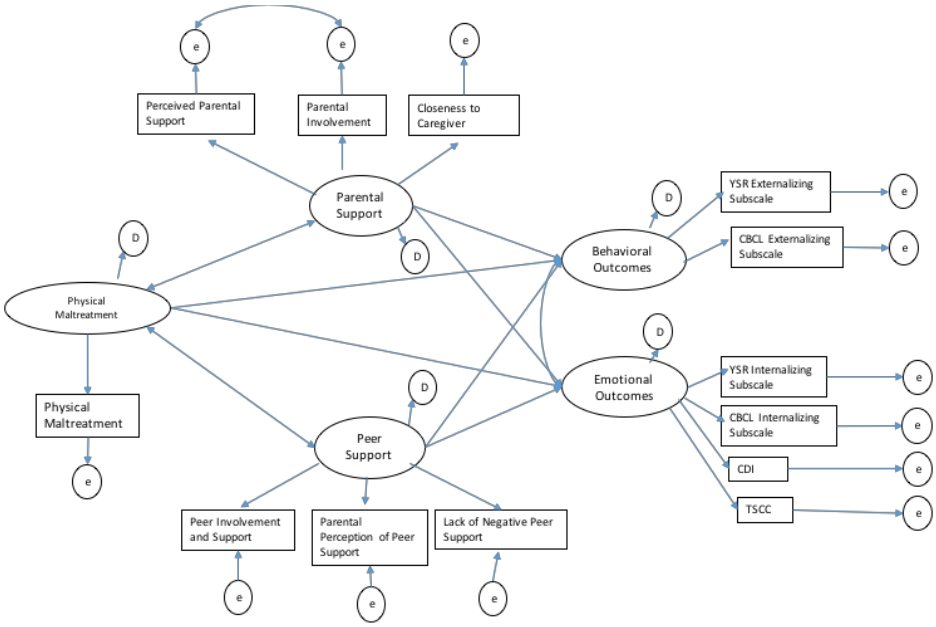

Figure 1. Hypothesized Model 1 as presented in Chapter 3. Dual domain resilience. Separates with outcomes into two variables.

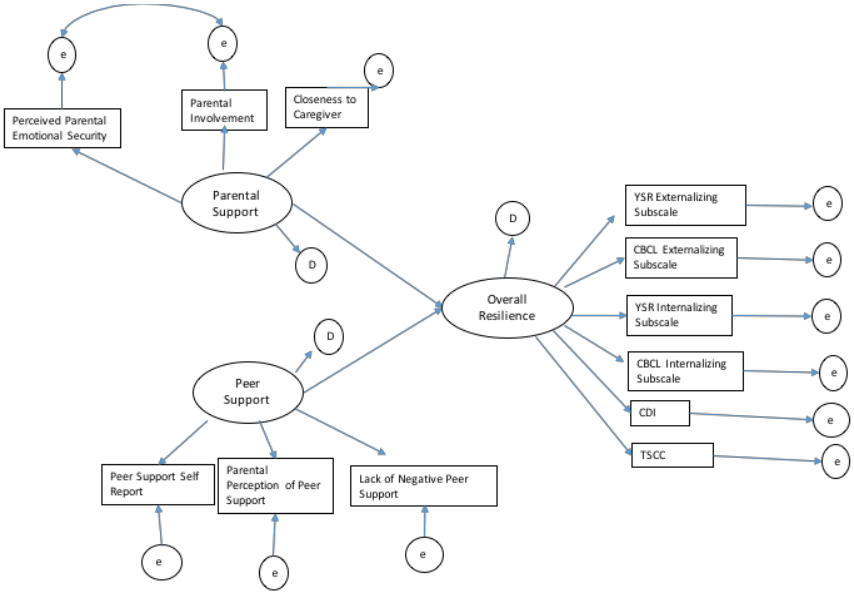

Figure 2. Hypothesized Model 2 as presented in Chapter 3. Combines emotional and behavioral outcomes into one variable.

Measures

Descriptions of Variables.

Scores for each instrument were summarized using descriptive statistics and are presented in Table 2. Reliability and validity of the dependent manifest variables were determined to be acceptable prior to the analysis as they are well-known, empirically supported instruments with considerable evidence of the instruments' reliability and validity.

Table 2.

Psychometric Properties of Manifest Variables

Variables	*N*	Missing	*M*	*SD*	*Mdn*	Range Min	Max
Parental Support							
Parental Emotional Security	372	2	9.72	2.31	10.00	3	12
Parental Involvement	369	5	12.60	2.75	13.00	4	16
Closeness to Caregiver	370	4	8.38	2.05	9.00	2	10
Peer Support							
Peer Support (Self-Report)	352	22	66.55	10.92	69.00	29	80
Peer Support (Caregiver-Report)	349	25	10.29	1.58	11.00	5	12
Lack of Negative Peers	361	13	25.83	4.85	28.00	6	30
Behavioral Resilience							
Self-Report (YSR)	374	0	56.44	11.51	57.50	0	85
Caregiver Report (CBCL)	370	4	57.50	11.45	58.00	0	85
Emotional Resilience							
Self-Report (YSR)	374	0	51.23	11.01	51.00	0	89
Caregiver Report (CBCL)	369	5	54.61	11.52	55.00	0	90
Depression (CDI)	371	3	50.69	11.58	48.00	0	100
Trauma (TSCC)	372	2	50.94	10.29	49.00	0	89

Note. Parental and peer support variables are created by the sum of the included items in the variable. All scales used to measure behavioral and emotional resilience utilize the *t*-scores for each participant.

Risk Factors.

Physical maltreatment.

Physical maltreatment latent variable was determined by the Child Maltreatment module of the Parent-Child Conflict Tactics Scale. The items that describe physical

maltreatment determined the presence of physical maltreatment. If the participant endorsed being physically maltreated by either parent and in any of the items referring to physical maltreatment, the participant was considered physically maltreated and included in the sample. If physical maltreatment is present, the item was coded 1 (1 = yes). If the participant denied any physical maltreatment, the item was coded 0 (0 = no). Only physically maltreated adolescents were included in the sample. A total of 376 participants endorsed being physically assaulted by a parent during their lifetime (52.9% of the adolescent maltreated dataset not in foster care). A total of 228 female participants were physically assaulted by a parent (60.1% of the adolescent female dataset not in foster care).

Protective Factors.

Parental support.

The parental support latent variable was derived from the following three indicators: parental emotional security, parental involvement, and closeness to caregiver. An additional variable, caregiver time spent with adolescent, was initially included as an indicator variable and will be discussed below. It was removed during the data screening process due to the issues outlined below. The indicator variables included are diverse and expected to appropriately measure the latent construct of parental support. The parental emotional security and perceived support indicator variables were both calculated from two subscales including the measure of Relatedness Scale from Research Assessment Package for Schools – Self (RAPS-S) and the Report Instrument for Middle School Students (RAPS-SM; Connell, 1998). Closeness with caregiver and caregiver time spent with adolescent indicator variables was measured by questions from the Longitudinal

Study for Adolescent Health (ADD Health; Bearman, Jones, & Udry, 1997). The parental support latent variable of the three indicator variables was found to be highly reliable (α = .86).

The RAPS-SM instrument is intended for youth ages 11 and above. It consists of three domains: Engagement, Beliefs about Self, and Experiences of Interpersonal Support. The measure is categorized in seven subdomains: Ongoing Engagement, Reaction to Challenge, Perceived Competence, Perceived Autonomy, Perceived Relatedness, Experiences of Support from Parents, and Experiences of Support from Teachers. Two of the subscales were used in the NSCAW dataset as indicator variables: parental emotional security and parental involvement. The parental structure and autonomy support variables was not included in the model as those variables showed low internal reliability in the NSCAW dataset (Cronbach α = .28 to .66). The instrument requires approximately 50 minutes to complete.

Closeness with the caregiver and caregiver time spent with adolescent indicator variables included items in the NSCAW dataset taken from the relationships with caregivers and caregiver section from the National Longitudinal Study of Adolescent Health.

Parental emotional security. The sum of the 3-item measure created the parental emotional security variable. The responses to each of the three items were coded as the following: 1 = *not at all true*, 2 = *not very true*, 3 = *sort of true*, and 4 = *very true*. The second and third items in this manifest variable were inversed to positively correlate with parental emotional security. The parental emotional security variable consisted of three items on emotional support (i.e. “When I’m with my parents, I feel good”) and was be

calculated by the sum of the three items. The instrument demonstrated high reliability (α = .80). The total score ranged from 3.00 to 12.00 (M = 9.72, SD = 2.31).

Parental Involvement. Four items regarding the time parents spent with the participants and interest in their activities measured parental involvement (e.g. "My parents enjoy spending time with me"). Participants were instructed to answer how true each statement was (1 = not at all true, 2 = not very true, 3 = sort of true, and 4 = very true). Item number three and four were inversed to indicate higher levels of parental support. The instrument demonstrated acceptable reliability (α = .68) for research purposes. Scores ranged from 4 to 16 (M = 12.60, SD = 2.75). The instrument was missing data from five participants.

Closeness to caregiver. The adolescents were asked two questions focused on their perception of the closeness of relationship (e.g. "How close do you feel to your caregiver?" and "how much do you think your caregiver cares about you?"). Participants were instructed to respond with one of the following answers: 1 = not at all, 2 = a little bit, 3 = somewhat, 4 = quite a bit, or 5 = very close or very much. Closeness to caregiver manifest variable was measured by the sum of the two items. The two items were found to be highly reliable (α = .79). The total score for this measure ranged from 2 to 10 (M = 8.38, SD = 2.05). The items did not require recoding. The first item was missing data from four participants and the second item was missing data from three participants.

Time spent with caregiver indicator variable. The questions taken from the National Longitudinal Study of Adolescent Health included an additional 10 questions in that asked participants to estimate the time that they spent performing activities with the caregivers (i.e., "In the past 4 weeks have you had a talk with your caregiver about a

personal problem you were having?"). These 10 items measured the time caregiver spent with the adolescent. Participants were asked to respond with 1 = yes or 0 = no. One item was removed due to item content did not demonstrate face validity and to improve scale reliability. The item asked "How much time do you spend arguing with your parents?"

The 9-item manifest variable scale demonstrated moderate reliability (α = .71). The total score for this measure ranged from 9 to 18 (M = 13.60, SD = 2.19). Higher scores indicated more time spent with parents. Although the scale showed high reliability, the instrument demonstrated low levels of reliability with the other three parental support variables (α = .38). The instrument was negatively associated with closeness to caregiver, parental emotional security, and parental involvement (r^2 = -.39, p <.001; r^2 = -.39, p <.001; r^2 = -.46, p <.001 respectively). Additionally, time spent with caregiver was positively related to all six indicator variables of emotional and behavioral problems: YSR externalizing subscale (r^2 = -.21, p <.001), CBCL externalizing subscale (r^2 = -.19, p <.001), YSR internalizing subscale (r^2 = -.17, p = .001), CBCL internalizing subscale (r = -.06, p = .225), CDI (r^2 = -.21, p <.001), and TSCC trauma score (r^2 = -.05, p = .376). As such, time spent with caregivers was negatively associated with resilience. Because of the variable's lack of reliability with the other parental support variables and lack of protectiveness against maltreatment, this indicator variable was removed from analysis prior to the measurement models.

Peer support.

The peer support latent variable was initially gauged by the Loneliness and Social Dissatisfaction Questionnaire for Young Children (LSDQ-YC; Asher et al, 1984; Asher & Wheeler, 1985), parental-report items regarding peer relations from the Social Skills

Rating System (SSRS; Gresham & Elliott, 1990), and lack of support from deviant peers measured by the Deviant Peer Affiliation Scale (Capaldi & Patterson, 1989). The peer support latent variable demonstrated low reliability ($\alpha = .20$). However, no combination of any of the two of the indicator variables of peer support improved the variable's reliability. Therefore, the combination of the three peer support indicator variables remained the manifest variables chosen to measure the latent construct of peer support in the initial model.

Peer support self-report manifest variable. Self-report of peer support manifest variable is measured by the sum of the 16 individual items from the LSDQ. The LSDQ measures self-report feelings of loneliness and dissatisfaction with peer relations. The questionnaire is intended for ages 8 and above and requires approximately five to ten minutes. The measure consists of 16 principle items. The key items ask "yes," "no." or "sometimes" questions focusing on feelings of loneliness, social adequacy versus inadequacy, subjective estimations of peer status, and appraisals of whether important relationship provisions are being met (i.e. "I feel alone" or "I am well-liked by the kids in my class"). Additionally, the measure includes 8 "filler items" including items on the topic of hobbies with the intention of helping children feel relaxed during the interview. Scores of this indicator variable are only based on the key items.

Cassidy and Asher (1992) normed the LSDQ-YC instrument on a sample of 452 kindergarten and first grade students in the Midwest. The majority of the sample was Caucasian. The reliability of the measure in the data set is assessed through the item to total score correlation and internal reliability. The item to total score correlation ranged from .26 to .55. Internal reliability measured by Cronbach's alpha was .79 ($\alpha = .79$). A

significant correlation existed between teacher's report of peer status and this instrument indicating adequate validity of the instrument.

The instrument showed high levels of reliability (α = .86). The instrument was missing data from 22 participants. Six items were recoded inversely to create a protective factor variable. These items were chosen through data screening techniques of assessing scale items and the content of the items. Following the recoding of the six items, higher total scores on this measure indicated higher levels of peer support. Participant's scores on this instrument ranged from 18 to 71 (M = 29.31 and SD = 10.87).

Parental perception of peer support manifest variable. This indicator variable was measured by items from the parent-report version of the Social Skills Rating System (SSRS). This measure allows the teacher to indicate if the adolescent has good peer relations. The items ask questions regarding how well the adolescent gets along with others (e.g. "initiates conversations with peers," "responds appropriately to peer pressure," and "acknowledges compliments or praises from peers") and asks how frequent each item is true of the adolescent. The parent can choose either "never," "sometimes," or "very often." The SSRS manual suggested the instrument has good test-retest reliability (r = .87).

The measure was narrowed down to four items that demonstrated the highest reliability and face validity of peer support. The items asked: "(a) How often does child make friends easy?" (b) "How often does child acknowledge compliments or praise from friends?", (c) "How often is child self-confident in social situations," and (e) "How often is child liked by others?" The items were chosen based on the theoretical justifications associated with the content, face validity of peer support questions, and data screening

techniques to remove potential items with reliability issues. The items were coded with 1 = *never*, 2 = *sometimes*, and 3 = *very often*. Higher scores indicated parent's perception of higher levels of social support. The scores on this instrument ranged from 5 to 12 (M = 10.29 and SD = 1.58). The instrument showed adequate levels of reliability (α = .68) for research purposes. The instrument was missing data from 25 participants.

Lack of deviant peer influence manifest variable. The lack of negative peer support influence indicator variable was measured by the Deviant Peer Affiliation Scale. The instrument contains 6 items on deviant peer affiliation. The items ask questions regarding how many of the adolescents' friends engaged in risk-taking behavior during the previous year (e.g. "Ruined or damaged something on purpose that wasn't theirs," "Suggested that you do something against the law," and "Stolen something worth more than $5?"). The scale were scored inversely (i.e. those with lower scores were considered to lack influence from negative peer support). Participant's scores on this instrument ranged from 6 to 30, (M = 25.83; SD = 4.85). The instrument showed high levels of reliability (α = .89). The high level of reliability may indicate multicollinearity issues with this instrument.

Outcome Measures of Resilience.

Behavioral problems.

Behavioral outcomes latent variable was measured by the indicator variables of the externalizing subscale variables from the Youth Self Report (YSR; Achenbach, 1991) and Child Behavioral Checklist (CBCL; Achenbach, 1991). A delinquency variable with items adapted from the Self-Report Delinquency scale questions from the National Longitudinal Study on Youth (SRD; Elliott & Ageton, 1980) was initially included in the

measurement, but was removed from analysis during the data screening process due to skew and kurtosis issues described below.

The use of *t*-scores was initially chosen over the total score for data analysis as it allowed comparisons between the instruments. Higher level of *t*-scores indicated lower levels of resilience and higher behavioral problems. Total scores were chosen during the exploratory phase as the method of measurement to reduce the issues caused by standardizing scores in the analysis. The protectiveness of parental and peer support in this current study is measured by a negative relationship with behavioral and emotional resilience. The latent variable of behavioral resilience exhibited moderate reliability (α = .65). Given the highly cited and empirically backed reliability and validity of these instruments, no further analysis was conducted to improve the reliability through altering the scales. Item content for these instruments were not listed in the codebook due to copyright restrictions. Thus, no alterations to the scales could responsibly occur for this model without knowledge of the content of items.

Self-report delinquency manifest variable. The Self-Report Delinquency (SRD; Elliott & Ageton, 1980) was designed for use in the National Longitudinal Survey of Youth (NLSY). It consists of a total of 72 questions regarding specific delinquent acts and the frequency (1 = once to 5 = five or more times). Possible delinquent behaviors the youth could endorse included acts such as running away from home, skipping classes, carrying a hidden weapon, and purposefully damaged property. The measure showed high reliability estimates in the NSCAW dataset (α = .98).

The Self-Reported Delinquency (SRD) violated the univariate normality assumption based on its skew and kurtosis. The skew equaled 3.69 (SE = .09) and

kurtosis of 18.55 (SE = .18). The skew and kurtosis were greater than the levels deemed acceptable (i.e. < 2 for skew and < 7 for kurtosis; Hancock & Mueller, 2010). Upon further inspection of the data, the high kurtosis appears to be a result of the similarity of the data. Fifty-three percent denied any acts of delinquency. Thus, the measure lacks variance to add relevant or important data to the model. Given the lack of benefits for inclusion of the variable with the lack of variance and the methodological consequences of violating the univariate normality assumption, the variable was removed from the models prior to measurement model testing.

Youth Self Report (YSR) externalizing subscale. The Youth Self Report (YSR) includes three compiled scales include internalizing and externalizing and total problems. The externalizing compiled scale was utilized for this indicator variable. The behavioral indicator variable consists of two syndromes (Achenbach, 1991) that measure behavioral problems in children and adolescents. The instrument is completed by the adolescent. The two syndromes include delinquent behavior, and aggressive behavior. A total of 30 problem items exist in the measure. The instrument asks behavioral questions such as "I disobey my parents" and "I steal at home." Scores ranged from 0 to 42 on YSR externalizing subscale (M = 15.73, SD = 8.85). The self-report measure of behavioral problems (YSR externalizing subscale) consisted of 30 items (α = .88).

The standardization sample of YSR consisted of 1,719 children out of 1,942 participants ages 11 to 18 that had not received mental health services or special remedial school in the prior 12 months. The test-retest reliability for the sample and the externalizing subscale both equaled .80 (r = .80). The t-score of 65 was used as the criteria for exhibiting an emotional or behavioral disorder on this instrument.

Child Behavioral Checklist (CBCL) caregiver-report externalizing subscale. The Child Behavior Checklist (CBCL) is similar to the YSR, but is completed by the caregivers. The CBCL consists of two broad problem scales: Externalizing and Internalizing. The externalizing subscale was used as the indicator variable. The externalizing subscale consists of delinquent behavior and aggressive behavior. Raw and standardized scores for each problem scale and compiled scores are calculated. This version is intended for ages 4 to 18 years old. The behavioral scale consists of items such as "drinks alcohol without parent's approval" and "disobedient at home." Scores ranged from 0 to 52 (M = 13.73; SD = 11.06) on CBCL externalizing subscale. A total of 4 cases of data was missing on the CBCL externalizing subscale. The caregiver report of behavioral issues (CBCL externalizing subscale) consisted of 35 items (α = .99).

Emotional problems.

The emotional outcomes latent variable consisted of the indicator variables of the Children's Depression Inventory (CDI; Kovacs, 1982), Trauma Symptom Checklist for Children (TSCC; Briere, 1996), and the internalizing scale of the Youth Self Report (YSR; Achenbach, 1991), and Child Behavioral Checklist (CBCL; Achenbach, 1991). The indicator variables for emotional resilience were found to be highly reliable (α = .78).

Youth Self-Report (YSR) internalizing subscale. The Youth Self-Report (YSR) and Child Behavioral Checklist (CBCL) were previously described under behavioral outcomes. Emotional outcomes latent construct included the internalizing scale from each of these measures as indicators. The YSR internalizing subscale consists of three syndrome subscales: withdrawn, somatic complaints, and anxious/depressed. YSR asks

internalizing questions such as “I have trouble concentrating or paying attention” and “I cry a lot.” Scores ranged from 0 to 52 on YSR internalizing subscale (*M* = 13.12, *SD* = 9.36). YSR internalizing subscale consisted of 31 items (α = .71).

Child Behavioral Checklist (CBCL) internalizing subscale. The CBCL internalizing subscale consists of the following three syndrome scales: withdrawn, somatic complaints, and anxious/depressed, The CBCL internalizing subscale includes items such as “too fearful or anxious” and “feels worthless or inferior.” Scores ranged from 0 to 46 (*M* = 9.39; *SD* = 8.49) on CBCL-caregiver report internalizing subscale. CBCL internalizing subscale consisted of 32 items that were highly reliable (α = .99).

Children’s Depression Inventory (CDI). The Children’s Depression Inventory measures depression and was included as an indicator variable for emotional outcomes. The instrument is a 27-item, self-report measure intended for children and adolescents ages 7 to 17 years old. It consists of five scales: negative mood, interpersonal problems, ineffectiveness, anhedonia, and negative self-esteem. For example, one question asks “Which one of these three sentences says how you have felt in the past 2 weeks?” and provides these three possible responses: a) “I am sad once in a while,” b) “I am sad many times,” or c) “I am sad all of the time.” Scores ranged from 0 to 42 (*M* = 10.43; *SD* = 7.73) for CDI depression scale and were highly reliable (α = .97).

Trauma Symptom Checklist for Children (TSCC). The Trauma Symptom Checklist for Children is a self-report instrument that consisted of 10 items and acted as an indicator variable for emotional outcomes. The measure consists of six clinical scales: anxiety, depression, anger, posttraumatic stress, dissociation, and sexual concerns. The measure consists of a list of thoughts, feelings, and behaviors (i.e. bad dreams or

nightmares) and the adolescents are instructed to rate the frequency of how often each thing happens on a 4-point scale (from 0 = "never" to 3 = "almost all the time").

The standardization sample of this instrument consisted of 3,008 children from three nonclinical samples. The internal consistency ranged from .82 to .89. Concurrent validity ranged from .72 to .80. The internal consistency of the PTS scaled was .87. The TSCC posttraumatic stress score was used as an indicator of trauma symptoms for the emotional resilience construct. In the current study, scores ranged from 0 to 29 (M = 9.37; SD = 6.05) for the TSCC trauma scale. The TSCC trauma scale was highly reliable (α = .99).

Overall resilience latent variable.

Overall resilience was originally measured by the *t*-scores of the six indicator variables of emotional and behavioral resilience described above. Cronbach's alpha for the 6 indicator variables equaled .82, suggestive of high reliability between the outcome manifest variables.

Correlations.

Bivariate correlational analyses were conducted to assess the relationships between variables. The relationship between hypothesized indicator and latent variables was examined by a correlation matrix (see Table 3). Results did not show any correlations indicative of multicollinearity. Bivariate correlations of the indicator variables are shown in Table 3. Only one exogenous variable was found to not be significantly related to an endogenous indicator variable. Parental perception of peer support was not significantly related to the trauma variable (r^2 = -.03, p = .591). Lack of deviant peers was not statistically significant to the self-report of peer support variable (r^2

= .10, p = .063) and the parental perception of peer support variable (r^2 = .08, p = .121). The remaining indicator variables were significantly correlated to all other indicator variables within their latent variable, and with the outcome variables. Bivariate correlations of the latent variables for Model 1 are presented in Table 4 and Table 5 for the latent variables in Model 2.

Table 3.

Correlational analysis of 12 indicator variables in model.

	v1	v2	v3	v4	v5	v6	v7	v8	v9	v10	v11	v12
v1	1.00	.69**	.70**	.10	.12*	.06	-.17**	-.21**	-.23**	-.14**	-.37**	-.20**
v2		1.00	.66**	.14**	.16**	.19**	-.23**	-.17**	-.30**	-.14**	-.35**	-.20**
v3			1.00	.17**	.13*	.12*	-.27**	-.24**	-.35**	-.15**	-.43**	-.23**
v4				1.00	.30**	.10	-.19**	-.19**	-.43**	-.28**	-.48**	-.35**
v5					1.00	.08	-.18**	-.32**	-.13*	-.42**	-.22**	-.03
v6						1.00	-.34**	-.15**	-.34**	-.13*	-.29**	-.25**
v7							1.00	.49	.59**	.32**	.57**	.39**
v8								1.00	.25**	.65**	.35**	.17**
v9									1.00	.34**	.71**	.69**
v10										1.00	.35**	.21**
v11											1.00	.56**
v12												1.00

Note. The variables from v1 to v12: closeness to caregiver (v1), parental emotional security (v2), parental involvement (v3), self-report peer support (v4), parental perception of adolescent peer support (v5), lack of negative peers (v6), YSR externalizing scale (v7), CBCL externalizing scale (v8), YSR internalizing scale (v9), CBCL internalizing scale (v10), CDI depression scale, (v11), and TSCC trauma scale (v12).
**p < .001; *p < .0

Table 4.

Correlational analysis of Model 1 latent variables.

	Parental	Peer	Behavioral	Emotional
Parental	1.00	.16**	-.28**	-.37**
Peer		1.00	-.15**	-.40**
Behavioral			1.00	.60**
Emotional				1.00

**$p < .001$.

Table 5.

Correlational analysis of Model 2 latent variables.

	Parental	Peer	Overall
Parental	1.00	.16**	-.38**
Peer		1.00	-.33**
Overall			1.00

**$p < .001$.

Summary.

Descriptive characteristics of each variable were outlined above including the sample and missing data for each instrument. Reliability analysis was conducted inter-item for each variable, between all manifest variables, and between the latent variables of Model 1 and Model 2. Scale reliability analysis was conducted for each manifest variable scale and each latent variable. No considerable reliability concerns were found in the bivariate correlation analysis among latent variables. Latent variables were all significantly correlated for Model 1 and Model 2. Parental perception of peer support was not significantly related to trauma symptoms ($r^2 = -.03$, $p = .591$) in the bivariate correlational analysis of the 12 indicator variables. All other protective indicator variables were significantly negatively associated with the six indicator variables of emotional and behavioral problems. Scale reliability analysis revealed some concerns for the model.

Time spent with caregiver variable of parental support was removed from both models due to the lack of predicting lower levels of emotional and behavioral problems. The other three parental support indicator variables were found to be highly reliable. The three indicator variables of peer support showed adequate levels of reliability within each variable, but found very low level of reliability between the three variables (α = .20). Four outcome indicator variables showed very high levels of reliability: CBCL externalizing subscale (α = .99), CBCL internalizing subscale (α = .99), CDI depression scale (α = .97), and the TSCC trauma scale (α = .99). These may cause issues in the model fit as this high levels of reliability may be indicative of multicollinearity. However, without content of the items and because of the high validation for the instruments, the outcome measures will not be adjusted in the models.

Selection Variables

Foster care exclusion.

Participants that endorsed living in out of home care were excluded. A total of 178 adolescent participants (32.1%) were in foster care and removed from the dataset. The sample was fairly equal in terms of gender (females: *n* = 99 [30.3%], males: *n* = 79 [34.8%]). In regards to ethnicity, only 26.5% of the White Americans sample were in foster care compared to 39.6% of Black Americans.

Data Screening.

Handling of missing data.

Missing data was assessed within variables and within cases. Missing data is considered low on all variables with most variables missing less than 5% of the data (Dong & Peng, 2013; Schafer, 1999). Missing data range from 0 to 25 cases in each

manifest variables (0 to 6.6% of the cases). The SPSS missing values add-on used to test the pattern of missing data. The Little MCAR test (1998) was not significant (p = .603). Missing data was found to be MCAR (missing completely at random). Since missing values were found to be randomly distributed across all observations, full maximum likelihood (FIML) method was used to handle the missing data. FIML allowed for the inclusion of missing data by providing estimates of parameters and standard errors. Full-information maximum likelihood allowed subgroups of individuals defined by patterns of available data to contribute to those parameters' estimation which their data are able to perform (Hancock & Mueller, 2010; Mueller & Hancock, 2010). LISREL was used to run the FIML procedure.

Tests for assumptions.

Structural equation modeling requires certain underlying assumptions to have been met. Multivariate normality assumes all variables are univariately normal and the data is a normal distribution. It is similar to univariate normality except it assumes each variable is normally distributed for each value of every other variable. Assumption is made if univariate normality is found and no univariate outliers. First, univariate normality was assessed through the skew and kurtosis of the data. The skew needed to be under 3 and the kurtosis under 7 (Hancock & Mueller, 2010). All variables were interval or ratio variables. Multivariate normality also assumes bivariate linearity and homoscedascity exist. SEM automatically assumes linear relations exist. Homoscedasticity assumes the variance of residuals around regression line are same across levels of X. It was assessed by Levene's test within the Multivariate Analysis of Variance. If non-normality had been found through any of these procedures, Satorra &

Bentler's (1994) robust procedure would be utilized to correct ML estimation. Issues within the model that were related to specific indicator variables were revised through removal of those variables to effectively run the model as the revisions did not affect the theoretical basis of the model.

Univariate outliers were determined by comparing cases' standard z scores against the threshold of 3.0. Univariate outliers would have been deleted if found to be a small number that does not significantly affect sample size. The values would have been winsorized if the deletion of outliers will significantly affect the sample size. Multivariate outliers were diagnosed using Mahalanobis distance D and cases violating the assumption were removed (Mueller & Hancock, 2010).

Skew and kurtosis.

SPSS was used to analyze if the data met the univariate normality assumption. Data was assessed for violations of skew and kurtosis. Only one hypothesized indicator variable of externalizing resilience, Self-Reported Delinquency (SRD), skew and kurtosis violated the univariate normality assumption. As discussed earlier in the chapter, the variable was removed from the model. Skew and kurtosis otherwise appear to be appropriate and valid (see Table 6).

Table 6.

Skew and Kurtosis of Included Variables

Variables	Skew	*SE*	Kurtosis	*SE*
Parental Support				
Parental Emotional Security	-.97	.13	.43	.25
Parental Involvement	-.65	.13	-.17	.25
Closeness to Caregiver	-1.44	.13	1.43	.252
Peer Support				
Peer Support –Self-Report	-1.09	.13	.79	.26
Peer Support-Caregiver-Report	-.77	.13	.05	.26
Lack of Negative Peers	-1.64	.13	2.70	.26
Behavioral Resilience				
Self-Report (YSR)	-.06	.13	-.38	.25
Caregiver Report (CBCL)	-.24	.13	-.39	.25
Emotional Resilience				
Self-Report (YSR)	.32	.13	.30	.25
Caregiver-Report (CBCL)	.11	.13	-.42	.25
Depression (CDI)	1.09	.13	1.15	.25
Trauma (TSCC)	.82	.13	.57	.25

Homogeneity of variance.

Levene's test of homogeneity of variance was conducted to determine if any issues with homogeneity exist. No violations were found. The Levene's statistic for the behavioral problem variables, YSR externalizing scale, $F(9, 364) = 0.66$, $p = .786$, and for the CBCL externalizing subscale $F(9, 361) = 0.79$, $p = .657$, showed no violation of homogeneity on these scales. The Levene's statistic for the YSR internalizing scale, $F(9, 364) = 1.15$, $p = .321$, for the CBCL internalizing subscale $F(9, 359) = 1.57$, $p = .657$, CDI depression scale, $F(9, 361) = 1.34$, $p = .201$, and for the TSCC trauma scale $F(9,$

362) = 0.71, p = .741, all also indicated no violations of homogeneity on manifest variables.

***Outliers*.**

A total of 71 outliers were discovered during the data screening process: nine in closeness to caregiver variable, 4 in parental involvement, 14 in peer support, 23 in deviant peer influence, 4 in YSR internalizing subscale, 1 in CBCL internalizing subscale, 9 in CDI depression scale, and 7 in TSCC trauma scale. Upon further screening, it was unclear if the outliers were true data points or true outliers. No outliers were above the threshold of 3.0. Thus, outliers were not removed or required winsorizing. The Mahalanobis distance test was conducted to detect multivariate outliers. Two cases were removed for multivariate outlier violations.

Collinearity.

Collinearity issues were determined by the tolerance and VIF of each factor. The tests for the assumption of collinearity revealed that multicollinearity was not a concern (closeness to caregiver: tolerance = 0.43, VIF = 2.30; Parental emotional security: tolerance = 0.47, VIF = 2.12; parental involvement: tolerance = 0.45, VIF = 2.20; Self-report of peer support: tolerance = 0.89, VIF = 1.12; parental perception of the adolescent's peer support: tolerance = 0.88, VIF = 1.13; lack of deviant peer influence: tolerance = 0.94, VIF = 1.06). No tolerance values were below .20 (Rajdeep, Cote, & Baumgartner, 2004).

Summary.

Data was screened to determine if it met criteria for all tests of assumptions to run a structural equation model. Few violations were detected. Missing data was small in

quantity (Dong & Peng, 2013; Schafer, 1999), ranging from 0 to 6.6% of the cases, and did not appear to be a concern. Missing data was found to be MCAR (i.e. Little MCAR test *ns* [$p = .603$]) and FIML was employed to replace the missing values. One variable, self-report delinquency, was found to violate the assumption of univariate normality and was subsequently removed from the model. No other variables violated the assumption of univariate normality. Since no other violations of univariate normality was detected, the data was determined to meet the assumption of multivariate normality. No indicator variables showed potential collinearity issues as determined by the Levene's test of homogeneity of variance. Two significant multivariate outliers were detected and removed. Univariate outliers were detected, but were not removed as it is not clear if they are true data points and did not meet the threshold of 3.0. No collinearity issues were detected by the tolerance and VIF statistics.

Covariances.

Covariances are one of the core statistics utilized in structural equation modeling. The covariance matrix was created in SPSS to use as the dataset analyzed. SEM tests if the hypothesized structural equation model produces a population covariance matrix that is consistent with the sample covariance matrix. Thus, it compared parameters to the sample covariance matrix to assess if the model is a good fit. It also allowed estimation of indirect as well as direct effects with other variables in complex models (Schumacker & Lomax, 2010).

Assessing model fit and estimation.

The covariances were utilized to run the confirmatory factor analysis in LISREL. The data-model fit indices of the hypothesized structural model were analyzed. The data

was examined through absolute, parsimonious, and incremental fit indices. Absolute fit indices included the model chi-squared statistic, Standardized Root Mean Squared Residual (SRMR), and Goodness-of-Fit Index (GFI). Absolute fit indices improve with the inclusion of more parameters in a model. It compares observed and model-implied covariance matrices. The Normal Chi-Square Fit Index (CMIN/DF) adjusts the chi-square to according to the sample size and may serve as a more accurate measure. The SRMR should be less than .08 with 0 being the perfect fit and chi square values should be statistically not significant (Diamantopoulos & Siguaw, 2000). Parsimonious fit indices take model complexity into account to compare observed and model-implied covariance matrices. Parsimonious fit indices improve the more parameters are added to the model. Parsimonious fit indices were assessed through the Akaike Information Criterion (AIC), Root Mean Squared Error of Approximation (RMSEA), and the Adjusted Goodness-of-Fit Index (AGFI). The RMSEA should fall below .05 with a 90% confidence interval. Incremental fit indices will compare reproduced and null covariance matrices. It will be measured through Comparative Fit Index (CFI), Normed Fit Index (NFI), and Non-normed Fit Index (NNFI). All incremental indices listed should have at least a .95 target value. The factor loadings will determine the significance of each protective factor on moderating the relationship. The model fit and estimations will be assessed for the first and second proposed structural model. If the model is found to be a good fit, interpretations of the parameter estimation may be formulated (Mueller & Hancock, 2010).

Reverse causal effects.

Reverse causal effects were ruled out theoretically in this model. It can be assumed protective factors would not result in risk factors according to the resilience framework. Likewise, according to the theory, resilience occurs following risk, not vice versa.

Hypothesis Testing

Research Question

Is the relationship between the protective factors of peer and parental support and resilience in physically maltreated adolescents stronger in females?

A series of two structural models were systematically tested to directly address the research question. Structural equation modeling was chosen to analyze gender differences in the relationship between the risk factor of physical maltreatment, the protective factors of parental support and peer support, and emotional and behavioral problems with the focus on females. Resilience was considered as the reduction of emotional and behavioral problems by the protective factors of peer and parental support.

Two models were developed based on literature and assessed. Within the models, the exogenous variables were the two protective factors. The model examined the mediation of the latent variables of the protective factors (parental support, and peer support). The endogenous variables in the model will be emotional and behavioral resilience (Model 1) or overall resilience (Model 2).

The first hypothesized model separated emotional and behavioral problems in two separate latent outcome measures (see Figure 1). The second model combined behavioral and emotional problems into one overall latent variable (see Figure 2).

The LISREL program was used to assess the measurement model for both hypothesized models. The structural paths were removed and all latent variables were allowed to covary. The assessment of the measurement model determined if the indicators adequately measure each latent concept. Respecification may occur if issues within the measurement model exist.

Next, the two hypothesized structural models were be assessed for fit. Specifically, the data fit indices and factor loadings were examined to determine if the models are a good fit. The data fit indices and factor loadings from model 1 and model 2 were compared to determine if one model is a better fit than the other model. It was hypothesized model 2 will be a better fitting model as the path from maltreatment to behavioral problems is expected to be weaker in females when the two outcomes are separated. Additionally, the significance of the covariance between emotional and behavioral problems in the first model was evaluated to determine if a nested model without the covariance between the two latent constructs would be a better fitting model. This would suggest the two types of resilience are not related and may not be combined to produce an overall resilience. Thus, if this occurs the hierarchical or higher order factor may not be the most appropriate model to assess resilience in physically maltreated adolescents.

Mediation analysis of both hypothesized models was conducted with females only. Confirmatory factor analysis will be conducted on the above models to assess if the mediation model is a "good fit." The model fit will provide support for the hypotheses. Mediation model examines if the effect of a third variable on the relationship between dependent and independent variables. The mediation structural model followed Baron

and Kenny's (1986) approach. Step 1 tested the fit of the relationship between the risk factor of physical maltreatment and emotional and behavioral problems. This determined whether the causal variable is correlated with the outcome. Once the fit is deemed adequate for the direct path between the risk factor and outcomes, the proposed overall model including the protective factors as mediators were be tested for goodness of fit. This second step will determine if the causal variable is correlated with the mediator and if the mediators are correlated with the outcomes. Step 3 tested the path between the risk factor and protective factors (peer and parental support), and the protective factors and emotional and behavioral resilience separately. This step shows if the mediators affect the outcome variables. If the first three steps all show significance, the overall models will be tested first with the direct paths from physical maltreatment and emotional and behavioral problems constrained to zero. The model will then be tested without the constraints. If the two models do not differ significantly, it can be considered a significant mediation exists. The indirect path will be tested using the Sobel test. The Sobel test determines the indirect effect by dividing path AB by the square root of the above variance. The ratio is treated the same as a Z test. The first and second proposed model will be tested utilizing these same methods. LISREL was utilized to test all steps in a one analysis. The model fit was assessed as discussed earlier in this chapter.

Next, a group code analysis technique of structural equation modeling was employed to detect any gender differences. The group code analysis technique allowed data from both groups to remain in a single SEM model. This allowed the examination of gender differences without reducing the sample size. Group code analysis involves dummy coding gender. The dummy code was included in the LISREL equation. The

models will be run the same as the above method, but with the addition of the gender dummy code. The group code analysis approach will be run in both model 1 and model 2. The data fit indices and factor loadings will be assessed to determine if the two models are a better fit in females than males as hypothesized.

Overview of SEM process in current study.

The current study required a three-step approach to testing the research hypotheses through structural equation modeling: measurement models, exploratory analysis, and structural models. The fit issues in the measurement model required exploratory analysis of variables prior to structural testing. Exploratory analysis was conducted in an iterative process. The final measurement models were developed from the exploratory analysis. The structural models were tested from those final models following the exploratory analysis.

Chapter 4: Results

This chapter presents the results from the analysis on resilience of physically maltreated adolescents focusing on interpersonal factors and gender differences. The secondary data analysis was conducted on the National Survey of the Child and Adolescent Well-being (NSCAW) dataset. This chapter begins with data screening, followed by a discussion of the measurement model, confirmatory factor analysis, and gender code analysis. Results from the structural equation model are shown to describe gender differences in the resilience process focusing on interpersonal protective factors (parental and peer support) in physically maltreated adolescents. Data screening, several of the tests of assumptions, and creation of covariance structures were conducted in SPSS. Structural Equation Modeling analyses were conducted in LISREL. Results are outlined below.

Relationship Between Physical Maltreatment and Outcomes

A total of 259 physically maltreated adolescents (68.9%) in the sample met criteria for an externalizing or internalizing disorder. Published *t*-scores for each instrument were used to determine if the participant met criteria for the disorders. YSR and CBCL use the *t*-score value of 60 or above for the clinical range criteria. CDI and TSCC use the *t*-score value of 65 and above for clinical range criteria. Of the adolescent sample, 29.1% (n = 109) fell in the clinical range for externalizing problems on the YSR and 45.1% (n = 169) for externalizing problems on the CBCL. In terms of emotional problems, 20.7% of the sample (n = 78) fell in clinical range for emotional problems on the YSR, 33.8% (n = 127) on the CBCL internalizing subscale, 12% (n = 45) met criteria for depression on the CDI, and 9.8% (n = 37) met criteria for PTSD based on the TSCC.

For physically maltreated adolescent males, 30.4% fell in clinical range in the YSR externalizing subscale and 37.8% on the CBCL externalizing subscale. Approximately 18.9% of males met criteria for an emotional disorder according to the YSR internalizing subscale, 33.1% in the CBCL internalizing subscale, 5.4% for depression (CDI), and 9.5% for PTSD (TSCC). Approximately 47.3% of the physically maltreated male sample met criteria for an externalizing disorder in at least one of the two externalizing scales and 42% met criteria for an emotional disorder on at least one of the four emotional outcomes measures. Approximately 60.1% of adolescent males in the dataset fell in the clinical range on at least one emotional or behavioral measure. Approximately 10.5% met criteria on over three outcome measures.

For physically maltreated females, approximately 49.1% fell in clinical range on the YSR externalizing subscale and 49.6% on the CBCL externalizing subscale. Approximately 21.9% met criteria for an emotional disorder on the YSR internalizing subscale, 34.2% on the CBCL internalizing subscale, 16.2% for depression (CDI), and 10.1% for PTSD (TSCC). Approximately 66.8% of the physically maltreated female sample met criteria for an externalizing disorder in at least one scale. Approximately 48.7% met criteria for an emotional disorder on at least one of the four emotional outcomes measures. Approximately 73.2% of physically maltreated adolescent females in the dataset fell in the clinical range on at least one emotional or behavioral measure. Approximately 14.3% met criteria on over three outcome measures. Females were more likely to meet criteria for emotional and behavioral disorders, and were more likely to meet criteria on over three outcome measures.

Measurement Model

The measurement model of the two hypothesized models were tested first. Model 1 consisted of four latent variables (i.e. parental support, peer support, behavioral outcomes, and emotional outcomes) and 12 indicator variables. Model 2 consisted of three latent variables (i.e. parental support, peer support, and overall behavioral and emotional outcomes) and 12 indicator variables. The measurement model tested each variable to determine if the overall models are adequate fits prior to testing the hypotheses. The factor loading for the first indicator variable for each latent variable was set to 1.0 to determine the metric. The maximum likelihood (ML) technique in LISREL was used to show data model fitness. The chi-square value, root mean square approximation (RMSEA), standardized root mean residual (SRMR), comparative fit index (CFI), normed fit index (NFI), Tucker Lewis index or non-normed fit index (TLI), and the goodness of fit index (GFI) were chosen as the fit indices to evaluate each model as these indices appear to most suggested in the SEM literature (Diamantopoulous & Siguaw, 2000; Hancock & Mueller, 2010; Mueller, 1996). The chi-square value and significance level is often suggested as it is a direct measure of model significance. However, many SEM authors argue against focusing solely on the chi-square value as it has several limitations. Chi-square value is vulnerable to sample size and correlations in the model. Chi-squared was found to mostly be significant in models with a sample size of over 400 (Diamantopoulous & Siguaw, 2000). Given that the current sample size is almost 400, more indices are necessary to determine fit and emphasis should not be placed on the significance of the chi-square value. It has been suggested to consider the chi-square value as one test statistic with smaller values indicating better fits (Hancock &

Mueller, 2010; Mueller, 1996). However, there is no universally agreed upon chi-square value for a good and bad fitting model (Diamantopoulous & Siguaw, 2000; Mueller, 1996). The RMSEA and SRMR are considered the most informative indices as they compare the observed variances with the predicted variances (Diamantopoulous & Siguaw, 2000; Hancock & Mueller, 2010). The CFI, NFI, TLI, and GFI are the most suggested incremental fit indices to report (Diamantopoulous & Siguaw, 2000). It should be noted that the NFI may be lowered by more parameters and TLI may be affected by number of indicators. Thus, this model may produce slightly lower NFI and TLI values due to its complexity (Diamantopoulous & Siguaw, 2000).

Measurement Model 1.

The hypothesized model of dual resilience was modified following findings from data screening. As mentioned above, two indicator variables (i.e. self-reported delinquency and time spent with caregiver) were removed and one indicator variable (i.e. parental-report of adolescent's peer support) were added to the model prior to testing the initial measurement model. Specifically, the indicator variables of self-reported delinquency and time spent with caregiver were removed from the models. The parental-report of the adolescent's peer support provided in the restricted release dataset was added as an indicator variable as discussed earlier in this chapter. In the initial measurement model of Model 1, three indicator variables each measured the parental support and peer support latent constructs, two indicator variables assessed behavioral resilience latent construct, and four determined emotional resilience latent construct. The errors of parental emotional security and parental involvement were set to covary. See Figure 1 for the original measurement model of Model 1 as created in Chapter 3.

Initial Model 1.

The initial analysis indicated a poor model fit for the Model 1 measurement model: $\chi 2=400.91$ (*df* = 47), p = .000; and RMSEA = 0.14. The model is significant indicating a poor fit. The RMSEA suggests a poor fit with the data. The initial comparative fit indices of CFI (.82) and GFI (.85) indicated an unacceptable data- model fit, below the acceptable level of good model fit of .90 (Bentler, 1992). Two indicator variables did not show significant error covariances: parental involvement (β = .94, *p* = .190) and behavioral self-report (CBCL externalizing subscale; β = 16.67, *p* = .157). All three variables for peer support exhibited low levels of variance explained by each factor: self-report of peer support (LSDQ; R^2 = .28); parental perception of peer support R^2 = .05); lack of negative peer influence (R^2 = .13). The parental report of externalizing and internalizing behaviors (CBCL) also showed low reliability (R^2 = .28 and R^2 = .18).

It can be concluded that the measurement model failed to capture the constructs. However, given the issues were thought to result from the ability to measure the constructs in the initial hypothesized model versus issues with the hypothesized relationship among the constructs, a decision was made to attempt to better measure the constructs instead of rejecting the model. The model was respecified based off modification indices and following the guidelines for accepting empirical relationships.

Respecified Measurement Model 1.

Modifications were made in through an iterative process based off the modification indices and evaluation of the initial model. In the initial model. The three variables of peer support and CBCL had exhibited low levels of variance explained and factor loadings in the initial model. Still, these variables were left in the respecified

model for the reasons explained below. Allowing the peer support indicator variables to remain in the model likely reduces model fit. However, the decision to not modify the peer support latent variable in the respecified model was based on the limitations of the dataset. The removal of any one indicator variable of peer support did not improve the model. Each combination consisting of two of the three peer support indicator variables (i.e. removing one indicator variable each time) did not improve the model fit. It is suggested that the latent variable requires more than one indicator variable for adequate measurement (Hancock & Mueller, 2010). CBCL is a widely-used and validated instrument. Thus, it was kept in the model as it has been shown to be a good measure of emotional and behavioral problems.

In the initial model, the error covariance between the peer support indicator variables of parental emotional security and parental involvement was not significant at the .05 level (β = -1.16, *SE* = .551). This error covariance path was removed from the respecified model.

The Lagrange Multiplier and Wald Tests are referred to as modification indices in LISREL program. The modification indices list the change in chi-square value that would result from the suggested modifications. The suggested path modification indices could not be theoretically justified to add to the model. No changes were made to the model paths.

The modification indices suggested the addition of 17 new error covariances. The addition of the error covariances were tested in an iterative process. The model was tested starting with the error covariances that were suggested to produce the most improvement in model fit. Only the error covariances that were theoretically justified were tested. The

final respecified model included six new error covariances based off the modification indices and following theoretical considerations that suggest the error of the variables would correlate due to similarity of the variables. The theoretical justification for allowing error covariances of depression (CDI scale) and trauma (TSCC-C scale) with the self-report of internalizing problems (YSR internalizing subscale) and parental-report of internalizing problems (CBCL internalizing subscale) are based on the relatedness of the instruments. YSR and CBCL internalizing subscales include items on depression and trauma symptoms. Thus, it is likely the errors would covary. Additionally, error covariances were added for the internalizing and externalizing problems of YSR and CBCL. These error covariances can be justified as the scales measure similar items, but differ in type of report (i.e. self-report vs. parental-report). No other suggested error covariances were added to the Model 1 measurement model for model parsimony and lack of strong theoretical justifications.

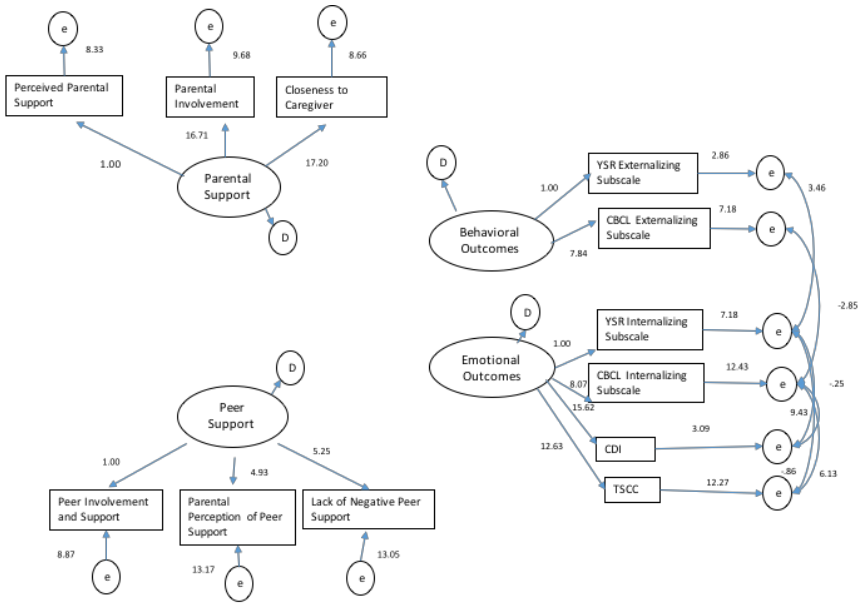

Figure 3. Hypothesized Model 1 respecified measurement model. Dual domain resilience: separates with outcomes into two variables.

The respecified measurement model of Model 1 demonstrated a mediocre fit. Results of the measurement model are presented in Appendix 3. The results include fit indices and factor loadings for each variable. The analysis indicated a mediocre model fit for the Model 1 measurement model: $\chi 2 = 165.78$ (42, $N = 374$), $p = .000$; and RMSEA = 0.09 (Diamontopoulos & Siguaw, 2000). The RMSEA is over the cut-off .06, but is still in the borderline and interpretable range. A value $\geq .10$ suggests a poor fit (Browne & Cudeck, 1992). Other fit indices suggest an adequate model fit (CFI = .94, NFI = .92, GFI = .93). These indices are above the accepted level of good model fit of .90 for the incremental fit indices (Bentler, 1992). The SRMR estimates the standardized difference between the observed correlation and predicted correlation. A value of 0 would be indicative of a perfect fit (Diamontopoulos & Siguaw, 2000). The SRMR falls below the 0.08 target value (SRMR = 0.06). The mediocre fit to the model posits concerns for the ability to test structural paths with this model. Due to issues in the model fit, an exploratory analysis was necessary instead.

Measurement Model 2.

The same revisions to Model 1 resulting from the data screening process were made to Model 2 prior to running the measurement model: the indicator variables of delinquency and time spent with caregiver were removed from the models and the parental report of the child's peer support was added as an indicator variable. Model 2 consisted of three indicator variables each measured the parental support and peer support latent constructs, and six indicator variables determined the overall resilience latent variables. The errors covariance between parental emotional security and parental involvement was included in the original measurement model of Model 2. See Figure 2 for the original measurement model of Model 2.

Initial Measurement Model 2.

The analysis indicated a poor model fit for the Model 1 measurement model: $\chi 2 = 444.96$ (50, $N = 374$), p = .000; and RMSEA = 0.15. The model suggests an unacceptable fit (Mueller, 1996). The initial incremental fit indices of CFI (.80) and GFI (.84) also suggest a poor fit with the data and will need to be respecified to test the model.

Parental involvement was the only indicator variable to not show significant error covariances ($\beta = .1.04$, p=.133). The three variables for peer support accounted for only a small amount of variance in the model: self-report of peer support ($R^2 = .25$), parental perception of adolescent's peer support ($R^2 = .06$), and lack of negative peer influence ($R^2 = .14$). The parental report of externalizing and internalizing behaviors (CBCL externalizing and internalizing subscales) also showed low levels of variance explained ($R^2 = .20$ and $R^2 = .18$). Using the same rationale as in Model 1, these indicator variables were left in the respecified model. The error covariance between the peer support

indicator variables of parental emotional security and parental involvement was not significant at the .05 level (β = -1.08, *SE* = .53). This error covariance path was removed from the respecified model. The same justifications as Model 1 for continuing the SEM process through modifying the model were valid and used for this second model.

Respecified Measurement Model 2.

Like Model 1, the suggested path modification indices did not make theoretical sense to include in the model. No changes were made to the model paths. Modification indices suggested the addition of 17 new error covariances. The final respecified model included seven new error covariances based off the modification indices and theory. The error covariances of the depression (CDI) and trauma scales (TSCC) were allowed to covary with the self-report of internalizing problems (YSR internalizing subscale) and parental-report of internalizing problems (CBCL internalizing subscale). The same justifications from Model 1 respecification decisions for the additional error covariance paths were used to determine the additional error covariance paths in Model 2. Error covariances were also added from YSR externalizing and CBCL externalizing subscale variables.

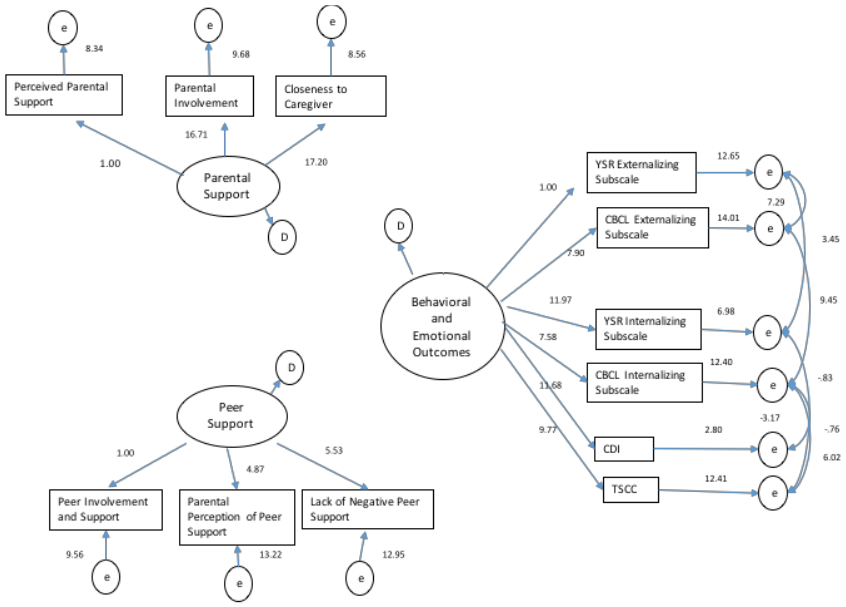

Figure 4. Hypothesized Model 2 respecified measurement model. Unidimensional resilience.

The respecified measurement model of Model 2 demonstrated a moderate fit. Results of the measurement model are presented in Appendix 3. The results include fit indices and factor loadings for each variable. The analysis indicated a moderate model fit for the Model 1 measurement model: $\chi 2 = 167.50$ (44, $N = 374$), p = .000; and RMSEA = 0.09. Other fit indices suggest an adequate model fit (CFI = .94, NFI = .92, GFI = .93). The SRMR falls below the 0.08 target value (SRMR = 0.06). The fit indices are comparable to Model 1. Similar to Model 1, an exploratory SEM analysis is necessary to produce a better fitting model to allow to interpretable structural path results.

Summary.

The adequate fit to the two models suggest that the paths of the models may have problems with interpretability. During the respecification process, scales were maintained as close as possible to the original instruments selected for the study. The original instruments have been widely used and validated. Thus, minimal changes were made to retain the empirical support and validation associated with the instruments. Additionally,

the items were not listed in the manual for the outcome scales, which present barriers to appropriately modify the scales with theoretical justifications. However, even with the respecifications, the model was only mediocre and required further exploratory analysis to produce a model that could test the structural paths. An exploratory analysis versus model rejection was justified as the issues to model fit could potentially be attributed to substantial issues in the measuring the peer support variable and outcome measures. The model fit issues were not necessarily a result of a poor model hypothesis, but of the measurement of the constructs. Better measurement of the constructs was necessary before concluding whether the hypothesized model adequately explained resilience and a determination of whether to reject the hypothesized model.

Exploratory Factor Analysis

Exploratory analysis to conduct a confirmatory factor analysis (CFA) was necessary to test the hypothesis. During this extensive process, several steps were taken to determine the best and most parsiminous measurement model for the structural analysis. The process was conducted in an iterative way through identification of each substantial issue, and addressing each issue through exploratory analysis in a step-by-step fashion through one issue at a time.

First, potential issues within the measurement of the constructs were identified. Of serious concern was the lack of reliability within the peer support latent variable and the lack of variance of resilience accounted for by the peer support variables in the measurement model. Secondly, the low factor loadings and reliability of the CBCL internalizing and externalizing subscales in the measurement of behavioral and emotional

problems. Thirdly, the very highly correlated scales of TSCC trauma scale, and CBCL internalizing and externalizing subscales.

To address the concern of potential issues within each latent variable, a measurement model of each of the latent variables was tested. As expected, the peer support variable model fit was poor. The poor model fit evidenced that changes to the peer support variable must occur to produce a good fitting model. No peer support manifest variable showed acceptable reliability with another peer support manifest variable.

All peer support manifest variables showed good reliability within the instrument. The best option was to remove two peer support manifest variables and create the latent variable from the items of one peer support instrument. The 16 self-report peer support items taken from the Loneliness and Social Dissatisfaction Questionnaire for Young Children (LSDQ-YC) instrument were chosen over the parental-report and lack of negative peers as the items are most directly targeting peer support of the child, and the assumption that the child would be more knowledgeable on their peer support than their parent's report. An exploratory factor analysis was conducted on these 16-items from the instrument. Based on the face validity for peer support items and the findings from the analysis, the instrument was reduced to nine items. For example, one item asked "How well the adolescent plays well with others?" This item was removed based on two justifications: (a) the item may be better fit for younger adolescents and children, and (b) it provides little information regarding whether the adolescent possesses peer support to protect against maltreatment. Other items were removed for matching the content of another item, but stating the question inversely (i.e. asking if the participant has many

friends at school and if the participant feels they don't have many friends at school). These final nine items showed a high reliability of .84. The new measurement model of peer support suggested the model is a good fit (RMSEA = 0.05, SRMR = 0.04, CFI =.97, TLI = .96). Thus, the peer support latent variable changed from three indicator variables with multiple items measuring each indicator variable to nine individual items taken from the LSDQ self-report peer support scale.

While the parental support latent variable did not present as serious of methodological concerns during the original measurement models as peer support, an exploratory analysis was still conducted on the variable. The measurement model of the three manifest variables (closeness to caregiver, parental emotional security, and parental involvement) was compared to a model separating of all nine variables that compose the three manifest variables into an indicator variable for each one. The model separating the variables into nine indicator variables was a better fitting model. It should be noted that two items measuring parental involvement did not produce as high of factor loadings or variance, but no theoretical justifications could account for removing the items. The items asked: "My caregiver doesn't seem to have enough time for me," and "My caregiver doesn't seem to know how I feel about things."

New revised measurement models were tested with nine indicator variables each of parental and peer support. CBCL internalizing and externalizing scales were removed as variables of behavioral and emotional outcomes to assess if the removal would improve the model fit. The two scales were removed in the measurement model. To avoid measuring a latent construct with one variable, behavioral outcomes was measured by the two subscales that compose the YSR externalizing scale. YSR internalizing subscale

variable was also separated into the three subscales that create the internalizing subscale. Additional error covariances were added for those variables. The new model did not exhibit a better fit. Thus, although the CBCL variable showed reliability and accounted for lower amounts of variance, it remained in the model. While factor analysis of the outcome scales and corresponding revisions to the models may improve model fit, it could not be justified theoretically, as the list of items for the scales were not provided due to copyright laws and the instruments are widely used and validated. Thus, variables could only be removed without knowledge of the validity of the variable of measuring the outcome variables.

The exploratory factor analysis produced two new models. Model 1c is shown in Figure 3 and Model 2c is shown in Figure 4. The outcome latent variables in both models consisted of the same manifest variables as the earlier models. The outcome variables changed to be measured by the sum of the items rather than the *t*-scores. The standardized scores likely reduced the variance in the models, which would result in a less accurate model. Thus, the raw sum of the scores were used in the analysis instead.

Both models consisted of nine variables measuring the latent construct of parental support and nine variables measuring the latent construct of peer support. No changes were made to the items within the parental support variable, only to the format of the construct. The items within the original three indicator variables were separated into individual indicator items for a total of nine variables instead of three variables with multiple items. Exploratory testing was conducted to determine the most parsimonious and theoretically based error covariances based on reduction of chi-square values to create the best fitting measurement models based on fit indices. A total of 13 error

variances were allowed to covary in Model 1c. and Model 2c. These error covariances are listed in the results of these two models. Refer to Table 7 for psychometric properties of the new indicator variables.

Table 7.

Psychometric Properties of Manifest Variables

			Range			
	M	*SD*	Min	Max	Skew	Kurtosis
Parental Support						
V1	3.91	1.24	1	5	-0.99 (0.13)	-0.09 (0.25)
V2	4.46	1.00	1	5	-1.95 (0.13)	2.97 (0.25)
V3	3.34	0.89	1	4	-1.30 (0.13)	0.88 (0.25)
V4	3.11	0.95	1	4	-0.69 (0.13)	-0.64 (0.25)
V5	3.28	0.90	1	4	-1.08 (0.13)	0.21 (0.25)
V6	3.42	0.88	1	4	-1.45 (0.13)	1.13 (0.25)
V7	3.51	0.84	1	4	-1.68 (0.13)	1.90 (0.25)
V8	3.12	0.97	1	4	-0.77 (0.13)	-0.53 (0.25)
V9	2.54	1.14	1	4	-0.02 (0.13)	-1.41 (0.25)
Peer Support						
V10	4.32	1.06	1	5	-1.64 (0.13)	1.94 (0.25)
V11	4.23	1.09	1	5	-1.44 (0.13)	1.31 (0.25)
V12	4.39	1.01	1	5	-1.80 (0.13)	2.68 (0.25)
V13	4.07	1.21	1	5	-1.24 (0.13)	0.58 (0.25)
V14	4.08	1.11	1	5	-1.10 (0.13)	0.33 (0.25)
V15	4.07	1.03	1	5	-1.08(0.13)	0.81 (0.25)
V16	4.14	1.02	1	5	-1.12 (0.13)	0.69 (0.25)
V17	4.13	1.21	1	5	-1.30 (0.13)	0.61 (0.25)
V18	3.89	1.01	1	5	-0.99 (0.13)	0.76 (0.25)
Behavioral Problems						
Self-Report (YSR)	15.73	8.87	0	42	0.55 (0.13)	-0.22 (0.25)
Caregiver-Report (CBCL)	13.52	11.09	0	52	1.04 (0.13)	0.71 (0.25)
Emotional Problems						
Self-Report (YSR)	13.12	9.37	0	52	1.14 (0.13)	1.41 (0.25)
Caregiver-Report (CBCL)	9.39	8.51	0	46	1.52 (0.13)	2.75 (0.25)
Depression (CDI)	10.39	7.71	0	42	1.00 (0.13)	0.87 (0.25)
Trauma (TSCC)	9.37	6.06	0	29	0.72 (0.13)	0.12 (0.25)

Notes. V1 and V2 measure closeness to caregiver. Variables V3 through V5 measure parental emotional security, and V6 through V9 measure parental involvement. Variables V10 through V18 are items taken from the Loneliness and Social Dissatisfaction Questionnaire (LSDQ). Manifest variables for behavioral and emotional problems are calculated by the total score of each subscale or scale.

Model 1.

The new measurement model of Model 1 demonstrated a moderate fit. Results of the measurement model are presented in Table 8. The results include fit indices and factor loadings for each variable. The analysis indicated a moderate model fit for the Model 1 measurement model: $\chi 2 = 443.91$ (233, $N = 374$), $p = .000$; and RMSEA = 0.05. Fit indices suggest an adequate model fit (CFI = .95, TLI = .94, GFI = .91). The TLI and CFI have been found to decline slightly with more variables (Diamantopoulos & Siguaw, 2000). Thus, it can be expected that these measures are slightly less than the first respecified model. The SRMR falls well below the .08 target value (SRMR = 0.06). The fit indices are comparable to Model 1 and indicate an adequate model fit. The AIC is equal to 15479.56. The AIC is a comparative measure of fit and is only meaningful when it is compared against a different model. The AIC value is included to compare Model 1 to Model 2. Lower AIC values indicate a better fitting model.

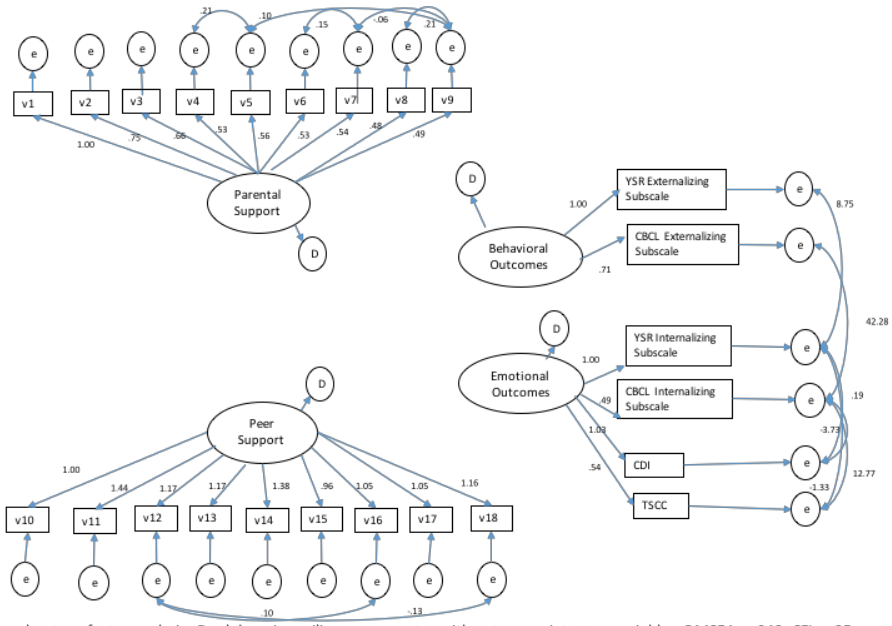

Figure 5. Model 1 following exploratory factor analysis. Dual domain resilience: separates with outcomes into two variables. RMSEA = .049, CFI = .95.

Model 2.

The measurement model of modified Model 2 demonstrated a moderate fit. Results of the measurement model are presented in Table 8. These results include fit indices and factor loadings for each variable. The analysis indicated a moderate model fit for the Model 1 measurement model: $\chi 2 = 526.89$ (236, $N = 374$), p = .000; and RMSEA = 0.06. Other fit indices suggest an adequate model fit (CFI = .93 TLI = .91, GFI = .90). The SRMR falls below the 0.08 target value (SRMR = 0.06). The fit indices are comparable to Model 1 and indicate an adequate model fit. The AIC is 15556.54.

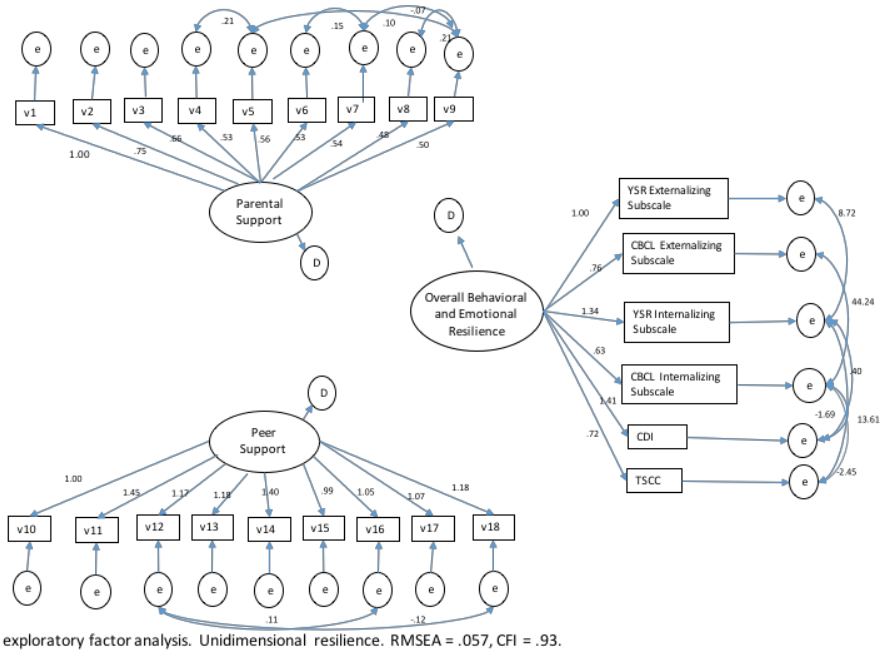

Figure 6. Model 2 following exploratory factor analysis. Unidimensional resilience. RMSEA = .057, CFI = .93.

Summary.

The results from the measurement model of Model 1c and Model 2c demonstrated and adequate fit. The modifications and respecifications to Model 1 and Model 2 were justified with both statistical and theoretical justifications. The models were fully explored to determine the best fitting models based on the dataset chosen to test the hypothesis. The model fit did not improve over the first set of respecified models. The

primary difference in the determination of the improved fit of these models was the lower RMSEA values (refer to Table 7). The RMSEA is the most popular index reported and considered to be the most informative index (Diamontopoulos & Siguaw, 2000). The decreased RMSEA values with the new models deem the models a reasonable fit (Diamontopoulos & Siguaw, 2000). Not many changes were shown to the additional fit indices (i.e. CFI, GFI) and remain in the acceptable range for an adequate model. In summary, the results of different goodness-of fit tests indicate that the proposed models are consistent with the observed data. The null hypothesis that the data is not a good fit can be rejected.

Structural Models.

Structural models based on the revised measurement models were conducted in LISREL for Model 1 and Model 2. Each are summarized below. Fit statistics are presented in Table 8. Refer to Figure 7 through 9 for structural model fits of the final models.

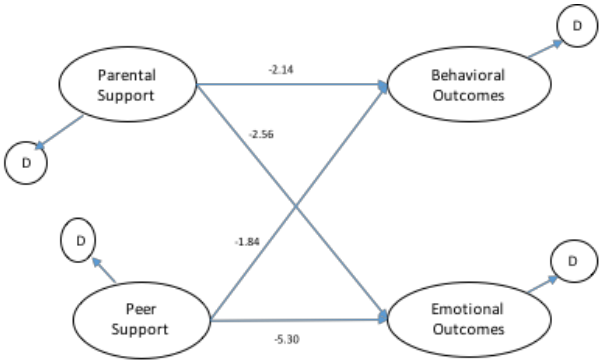

Figure 7. Structural Model 1. RMSEA = .062, CFI = .91. Behavioral paths error variance = 29.33, R^2 = .188. Emotional paths error variance = 30.93, R^2 = .376.

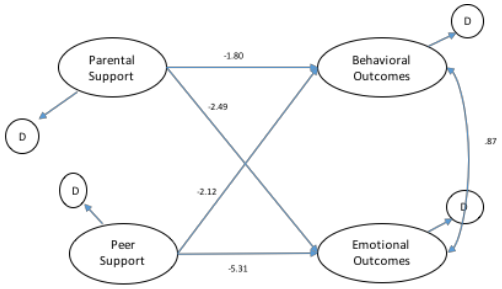

Figure 8. Structural Model 1 with covariance between outcome variables. RMSEA = .049, CFI = .95. Behavioral paths error variance = 59.94, R^2 = .088. Emotional paths error variance = 33.53, R^2 = .357.

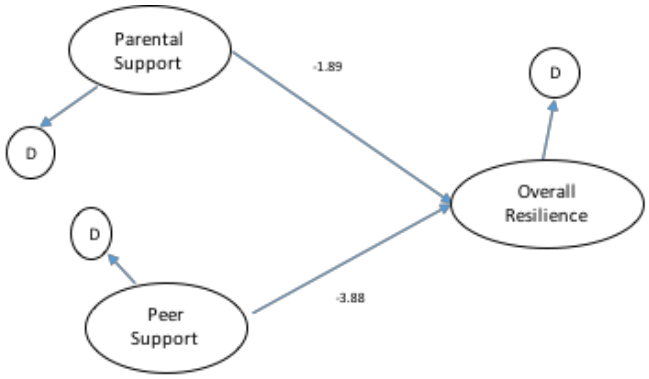

Figure 9. Structural Model 2. RMSEA = .057, CFI = .93, Error variance = 18.195, R^2 = .358.

Table 8.

Fit Statistics of the Measurement and Structural Models

	χ^2	Df	RMSEA	SRMR	CFI	NFI	GFI	TLI	AIC
Model 1									
Initial Measurement Model	400.91**	47	.142	.09	.82	.80	.85	.74	19064
Revised Measurement Model	165.78**	42	.089	.06	.94	.92	.93	.90	18839
Exploratory Model	443.91**	233	.057	.06	.95	.87	.90	.94	15480
Exploratory Model: Outcomes Covary	443.91**	233	.049	.06	.95	.89	.91	.94	15480
Structural Model	571.09**	234	.062	.07	.91	.86	.89	.90	15605
Model 2									
Initial Measurement Model	444.96**	50	.145	.09	.80	.78	.84	.73	19102
Revised Measurement Model	167.50**	44	.086	.06	.94	.92	.93	.90	18837
Measurement Model	526.89**	236	.049	.06	.93	.89	.90	.91	15557
Exploratory Model Structural Model	526.89**	236	.057	.06	.93	.87	.90	.91	15658
Group Code Analysis -Gender									
Model 1	242.19**	56	.094	.08	.91	.88	.91	.90	15398
Model 2	303.18**	57	.107	.08	.88	.85	.89	.90	15397

Notes. χ^2 is the chi-squared value. Df is the degrees of freedom. RMSEA is Root Mean Square Error of Approximation. SRMR is the Standardized Root Mean Square Residual. CFI is the Comparative Fit Index. NFI is the Normed Fit Index. GFI is the Goodness of Fit Index. TLI is the Tucker Lewis Index or the Non-Normed Fit Index. AIC is the Akaike Information Criterion.
**$p < .001$.

Structural Model 1.

As expected, statistically significant negative associations were found between the protective factors of parental and peer support and emotional and behavioral outcomes. As discussed previously, negative relationship between the protective factors and outcomes indicate higher levels of resilience. Peer support was negatively associated with behavioral outcomes (ß=1.48, $p < .001$) and emotional outcomes (ß = 01.9, $p < .01$). The fit indices suggest adequate model fit (RMSEA = 0.06, CFI = 0.91, GFI = 0.89, SRMR = 0.07). The chi-square was significant ($X^2 = 571.09$, $p = .000$). Although model chi-square is the most common goodness-of fit test and a significant chi- square value indicates lack

of satisfactory model fit, chi-square is sensitive to sample size and may not be the best indicator of model fit (Kline, 1998; Hancock & Mueller, 2010).

The *R*-square value for the outcome variable of behavioral problems indicate that the protective factors of parental and peer support accounted for approximately 18.8% of the variance. The emotional problems path indicated a larger portion of the variance was accounted for by parental and peer support (R^2 = .376).

The structural equation for behavioral resilience is Behavioral = - 2.14 Parental - 1.84 Peer, Error variance= 29.33 (*SE* = 6.55). The structural equation for behavioral resilience is Emotional = - 2.56 Parental – 5.30 Peer, Error variance = 30.93 (*SE* = 5.38).

Table 9.

Unstandardized, Standardized, and Significance Levels for Model 1 (Standard Errors in Parentheses)

Parameter Estimate	*Unstandardized*	*Standardized*	*p*	R^2
Measurement Model				
Parental Support → X_1	1.00	1.05	-	.71
Parental Support → X_2	0.75 (.04)	0.79	.000	.61
Parental Support → X_3	0.65 (.04)	0.69	.000	.60
Parental Support → X_4	0.54 (0.04)	0.56	.000	.36
Parental Support → X_5	0.56 (0.04)	0.59	000	.44
Parental Support → X_6	0.54 (0.04)	0.56	.000	.41
Parental Support → X_7	0.54 (0.04)	0.56	.000	.45
Parental Support → X_8	0.48 (0.05)	0.51	.000	.27
Parental Support → X_9	0.51 (.06)	0.53	.000	.22
Peer Support → X_{10}	1.00	0.57	-	.28
Peer Support → X_{11}	1.46 (0.15)	0.83	.000	.56
Peer Support → X_{12}	1.18 (0.13)	0.67	.000	.42
Peer Support → X_{13}	1.18 (0.15)	0.68	.000	.30
Peer Support → X_{14}	1.41 (0.15)	0.80	.000	.49
Peer Support → X_{15}	0.99 (0.12)	0.57	.000	.30
Peer Support → X_{16}	1.06 (0.13)	0.61	.000	.33
Peer Support → X_{17}	1.08 (0.14)	0.61	.000	.25
Peer Support → X_{18}	1.18 (0.13)	0.68	.000	.44
Behavioral Resilience → X_{19}	1.00	6.01	-	.46
Behavioral Resilience → X_{20}	1.18 (0.22)	7.10	.000	.43
Emotional Resilience → X_{21}	1.00	7.04	-	.63
Emotional Resilience → X_{22}	0.46 (0.08)	3.25	.000	.15
Emotional Resilience → X_{23}	1.09 (0.09)	7.65	.000	.98
Emotional Resilience → X_{24}	0.53 (0.05)	3.75	.000	.38
Error covariance X_4 and X_5	0.21 (0.03)	-	-	-
Error covariance X_6 and X_7	0.15 (0.03)	-	-	-
Error covariance X_5 and X_9	0.10 (0.03)	-	-	-
Error covariance X_7 and X_9	-0.07 (0.03)	-	-	-
Error covariance X_8 and X_9	0.21 (0.05)	-	-	-
Error covariance X_{12} and X_{16}	0.11 (0.04)	-	-	-
Error covariance X_{12} and X_{18}	-0.12 (0.04)	-	-	-
Error covariance X_{19} and X_{21}	12.96 (2.28)	-	-	-
Error covariance X_{20} and X_{22}	43.59 (4.54)	-	-	-
Error covariance X_{21} and X_{23}	-5.25 (4.04)	-	-	-
Error covariance X_{21} and X_{24}	-2.80 (2.48)	-	-	-
Error covariance X_{22} and X_{23}	11.47 (12.2)	-	-	-
Error covariance X_{22} and X_{24}	0.39 (1.65)	-	-	-
Structural Model				
Behavioral Resilience → Parental Support	-2.14 (0.43)	-0.37	.000	-
Behavioral Resilience → Peer Support	-1.84 (0.72)	-0.18	.010	-
Emotional Resilience → Parental Support	-2.56 (0.36)	-0.38	.000	-
Emotional Resilience → Parental Support	-5.30 (0.81)	-0.43	.000	-

Structural Model 2.

As expected, statistically significant negative associations were found between the protective factors of parental and peer support and the overall domain combining emotional and behavioral outcomes indicating higher levels of resilience. Peer support was negatively associated with behavioral and emotional outcomes (ß = 2.07, p = .001). The factor loading for parental support was set to 1.0 to determine the metric. See Table 10 for fit indices and factor loadings. The fit indices suggest adequate model fit (RMSEA = 0.057, CFI = 0.93, GFI = 0.90). The chi-square was significant (X^2= 526.54, p = 000).

The R-square value for the outcome variable of overall behavioral and emotional problems indicated a large *R*-square value (R^2 = .358). The structural equation for behavioral resilience is Behavioral = - 1.89 Parental – 3.88 Peer, Error variance= -18.20 (SE = 2.99). Refer to Table 10 for factor loadings of Model 2.

Table 10.

Unstandardized, Standardized, and Significance Levels for Model 2 (Standard Errors in Parentheses)

Parameter Estimate	*Unstandardized*	*Standardized*	*p*	R^2
Measurement Model				
Parental Support → X_1	1.00	1.05	-	.71
Parental Support → X_2	0.75 (0.04)	0.79	.000	.63
Parental Support → X_3	0.66 (0.04)	0.69	.000	.62
Parental Support → X_4	0.54 (0.05)	0.56	.000	.35
Parental Support → X_5	0.56 (0.04)	0.59	000	.43
Parental Support → X_6	0.54 (0.04)	0.57	.000	.41
Parental Support → X_7	0.51 (0.04)	0.57	.000	.45
Parental Support → X_8	0.48 (0.05)	0.50	.000	.27
Parental Support → X_9	0.48 (.06)	0.50	.000	.20
Peer Support → X_{10}	1.00	0.57	-	.30
Peer Support → X_{11}	1.43 (0.14)	0.81	.000	.58
Peer Support → X_{12}	1.15 (0.13)	0.65	.000	.43
Peer Support → X_{13}	1.12 (0.14)	0.64	.000	.28
Peer Support → X_{14}	1.37 (0.14)	0.78	.000	.50
Peer Support → X_{15}	0.92 (0.12)	0.52	.000	.28
Peer Support → X_{16}	1.05 (0.12)	0.60	.000	.34
Peer Support → X_{17}	1.00 (0.13)	0.57	.000	.24
Peer Support → X_{18}	1.18 (0.13)	0.67	.000	.44
Overall Resilience → X_{19}	1.00	5.36	-	.37
Overall Resilience → X_{20}	0.77 (0.12)	4.14	.000	.14
Overall Resilience → X_{21}	1.33 (0.12)	7.10	.000	.58
Overall Resilience → X_{22}	0.65 (0.10)	3.47	.000	.17
Overall Resilience → X_{23}	1.38 (0.12)	7.40	.000	.92
Overall Resilience → X_{24}	1.17 (0.12)	6.25	.000	.37
Error covariance X_4 and X_5	0.22 (0.03)	-	-	-
Error covariance X_6 and X_7	0.15 (0.03)	-	-	-
Error covariance X_5 and X_9	0.11 (0.03)	-	-	-
Error covariance X_7 and X_9	-0.06 (0.03)	-	-	-
Error covariance X_8 and X_9	0.22 (0.05)	-	-	-
Error covariance X_{12} and X_{16}	0.10 (0.04)	-	-	-
Error covariance X_{12} and X_{18}	-0.10 (0.03)	-	-	-
Error covariance X_{19} and X_{21}	9.27 (2.70)	-	-	-
Error covariance X_{20} and X_{22}	43.19 (4.93)	-	-	-
Error covariance X_{21} and X_{23}	1.48 (2.81)	-	-	-
Error covariance X_{21} and X_{24}	22.03 (3.54)	-	-	-
Error covariance X_{22} and X_{23}	-2.50 (1.87)	-	-	-
Error covariance X_{22} and X_{24}	-5.66 (2.60)	-	-	-
Structural Model				
Overall Resilience → Parental Support	-1.91 (0.29)	-0.37	.000	-
Overall Resilience → Peer Support	-4.42 (0.69)	-0.47	.000	-

Summary.

Model fit was interpretable and adequate. Potential issues with variables used in analysis may have impacted the strength of the model. The data may have multicollinearity issues with the high Cronbach's alpha for four of the outcome variables may have impaired the structural data model fit. However, Model 1 and Model 2 still exhibited moderate fit. Parental support and peer support effectively acted as protective factors against the risk factor of physical maltreatment. Model 2 demonstrated a slightly better fit with lower RMSEA and SRMR indices (RMSEA = 0.086 in Model 2 and RMSEA = 0.087 in Model 1; SRMR = 0.06 in Model 1 and SRMR = 0.07). However, these differences are within .01 on both indices and can be considered minor differences as indicated by Model 1 exhibited a slightly lower AIC value (15479.56 vs 15556.54). The model fits are similar for both models. The incremental fit indices do not differ significantly as well. Both models exhibit only moderate fit. The model fit is reduced with the addition of the structural paths.

Mediation Model

According to Baron and Kenny (1986), at least three conditions are required for a mediation effect. The conditions are: 1. X significantly predicts Y. 2. X significantly predicts M. 3. Controlling for M, X no longer predicts Y. Mediation analysis was conducted in LISREL. Structural equation modeling techniques were chosen over the traditional regression analysis due to several reasons: (a) SEM and mediation both assume causality and temporal ordering of variables, (b) can be tested in a single analysis for each model, and (c) allows the use of FIML to handle missing data (Gunzler, Chen, Wu, & Zhang, 2013). Total, indirect, and direct effects were analyzed to detect any

mediation effects. LISREL allowed for all of Baron and Kenny's three conditions to be tested within one analysis. LISREL's *z*-statistic is considered comparable to the Sobel test. Mediation effects were tested individually for parental and peer support. Mediation effects were first tested separately as it allowed for a further examination into specific mediational effects of each variable (Lau & Cheung, 2010). Multiple mediation effects were tested next. The models were tested in females only. Refer to Table 11 for results of mediation analyses.

Mediation analysis of parental support.

A partially mediated relationship was found in both Model 1 and Model 2. As such, there was a direct effect from parental support to emotional, behavioral, and overall resilience, but the direct path between maltreatment and resilience remained significant in the mediation model. Significance was determined if the Wald statistic (*z*-score) was greater than 1.96 (Little, Card, Bovaird, Preacher, & Crandall, 2007). The standardized indirect effects were relatively small (behavioral = 0.09, emotional = 0.13, and overall = 0.12) suggesting a weak partial mediation. Refer to Table 11 for direct and indirect effects for both models.

Mediational analysis of peer support.

Peer support did not mediate the relationship of maltreatment and resilience. No mediation was found as maltreatment was not significantly related to peer support. The Wald statistic was not significant for the relationship between maltreatment and peer support in Model 1 or Model 2. The standardized indirect effect of maltreatment on resilience while mediated by peer support equaled -0.02 for the behavioral path and -0.05 for the emotional path in Model 1 and equaled 0.00 for overall resilience in Model 2. Peer

support showed a significant negative relationship to emotional and behavioral problems (total direct effect = -2.55 for behavioral [*z*-score = -2.79] problems and -.7.85 for emotional problems [*z*-score = -7.85]). See Table 11 for values of direct and indirect effects.

Multiple mediation analysis.

Parental and peer support exhibited only a partial mediation effect on behavioral problems. Parental and peer support did not mediate emotional or overall problems. As noted above, maltreatment did not have a significant effect on peer support. The two protective factors did not work together to mediate behavioral and emotional problems combined (indirect effect = 0.75 [*z*-score = 1.75]). Refer to Table 11 for effect values.

Table 11.

Mediation Indirect and Total Effects.

	Indirect Effect	Z-Statistic of Indirect Effect	Total Effect	Z-Statistic of Direct Effect
Parental Support Mediation				
Model 1				
Maltreatment on parental support	--	--	-0.57 (0.11)*	-5.00
Parental support on behavioral problems	--	--	-2.39 (0.51)*	-4.73
Parental support on emotional problems	--	--	-3.74 (0.52)*	-7.13
Maltreatment on behavioral problems	1.36 (0.39)*	3.50	3.95 (0.93)*	4.25
Maltreatment on emotional problems	2.13 (0.51)*	4.21	3.06 (0.97)*	3.14
Model 2				
Maltreatment on parental support	--	--	-0.57 (0.11)*	-4.99
Parental support on overall problems	--	--	-2.53 (0.39)*	-6.46
Maltreatment on overall problems	1.44 (0.36)*	4.05	2.39 (0.69)*	3.47
Peer Support Mediation				
Model 1				
Maltreatment on peer support	--	--	0.10 (0.07)	1.50
Peer support on behavioral problems	--	--	-2.55 (0.92)*	-2.79
Peer support on emotional problems	--	--	-7.85 (1.09)*	-7.24
Maltreatment on behavioral problems	-0.26 (0.19)	-1.34	3.99 (0.94)*	4.26
Maltreatment on emotional problems	-0.79 (0.53)	-1.50	3.06 (0.96)*	3.19
Model 2				
Maltreatment on peer support	--	--	0.10 (0.07)	1.51
Peer support on overall problems	--	--	-5.03 (0.79)*	-6.38
Maltreatment on overall problems	-0.51 (0.34)	-1.49	2.33 (0.68)*	3.44
Multiple Mediation				
Model 1				
Maltreatment on parental support	--	--	-0.57 (0.11)*	-5.00
Physical support on peer support	--	--	0.10 (0.07)	1.50
Parental support on behavioral problems	--	--	-2.22 (0.50)*	-4.47
Parental support on emotional problems	--	--	-3.09 (0.46)*	-6.78
Peer support on behavioral problems	--	--	-1.89 (0.87)*	-2.17
Peer support on emotional problems	--	--	-6.99 (0.99)*	-7.05

Maltreatment on behavioral problems	1.08 (0.40)*	2.68	3.92 (0.92)*	4.25
Maltreatment on emotional problems	1.07 (0.63)	1.68	3.03 (0.93*	3.26
Model 2				
Maltreatment on parental support	--	-	-0.57 (0.11)*	-5.00
Maltreatment on peer support	--	--	0.10 (0.07)	1.51
Parental support on overall problems	--	--	-2.10 (0.35)*	-6.10
Peer support on overall problems	--	--	-4.51 (0.73)*	-6.20
Maltreatment on overall problems	0.75 (0.43)	1.75	2.31 (0.66)*	3.49

Notes. Significance determined by Z-statistic > 1.96; S.E. in parenthesis. Physical maltreatment is shortened to "maltreatment" in table.

Gender differences

The group code analysis technique was employed to detect gender differences. The model was a better fit for females in both Model 1 and Model 2 (β = .024 for both models). Females were dummy coded as 1; males were coded to 0. Thus, a positive factor loading for the dummy variable suggests the model is a better fit in females than males. Results from the group code analysis technique are found in Table 9 and 10. The fit indices suggest a poorer model fit for Model 1 (RMSEA = 0.09, CF I= 0.91, GFI = 0.91) and Model 2 (RMSEA = 0.11, CFI = 0.88, GFI =0 .89) than the original covariance-based structural models. The RMSEA value $\geq$ .10 in Model 2 indicates a poor fit (Browne & Cudeck, 1992). The chi-square was significant for both models ($\chi 2$ = 242.19, p = .001 and $\chi 2$ = 303.18, p = .000, respectively).

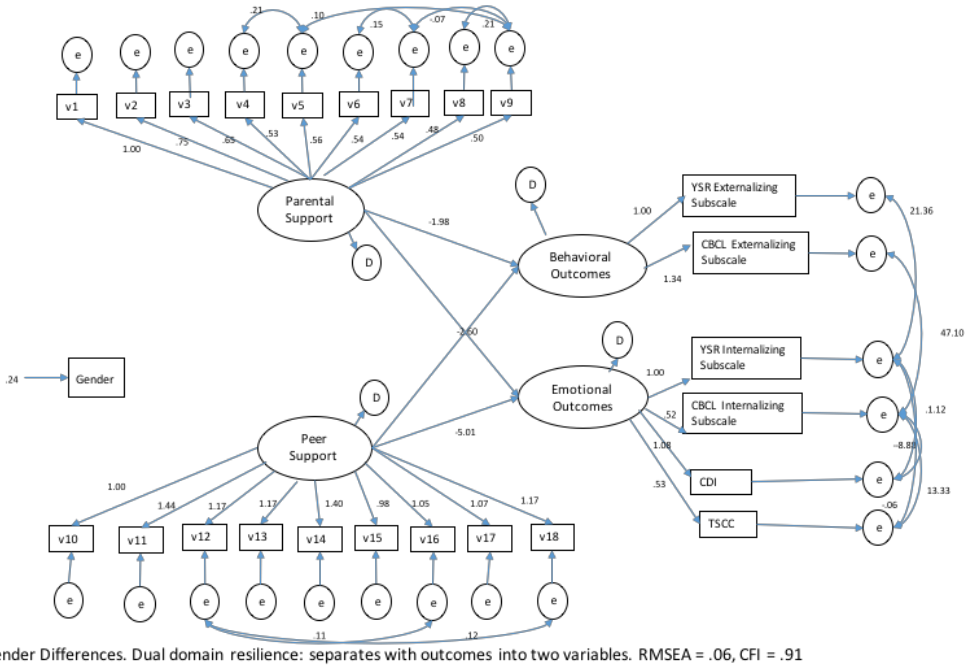

Figure 10. Model 1 Gender Differences. Dual domain resilience: separates with outcomes into two variables. RMSEA = .06, CFI = .91

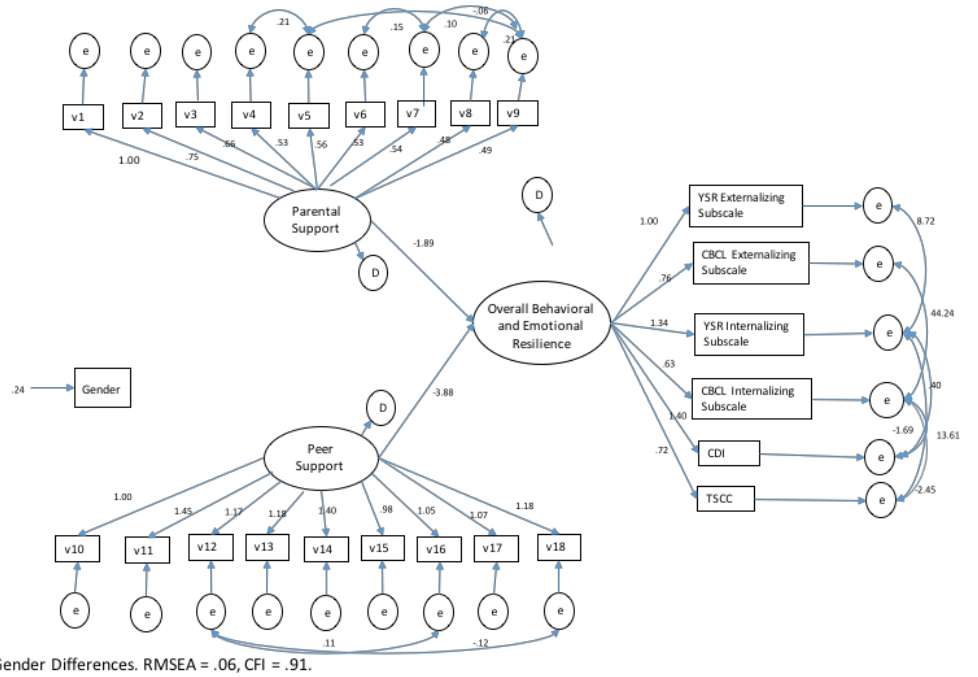

Figure 11. Model 2. Gender Differences. RMSEA = .06, CFI = .91.

Table 12.

Unstandardized, Standardized, and Significance Levels for Group Code Analysis (Standard Errors in Parentheses)

Parameter Estimate	*Unstandardized*	*Standardized*	*P*
Group Code Analysis Model 1			
Structural Model			
Behavioral → Parental Support	-1.98 (0.41)	-0.42	.000
Behavioral → Peer Support	-1.63 (0.65)	-0.19	.012
Emotional → Parental Support	-2.60 (0.35)	-0.42	.000
Emotional → Peer Support	2.34 (.38)	-0.45	.000
Error in Behavioral Resilience disturbance	19.33 (4.84)	.02	.000
Error in Emotional Resilience disturbance	23.96 (4.82)	.04	.000
Group Code Analysis Model 2			
Structural Model			
Overall → Parental Support	-1.89 (0.29)	-0.37	.000
Overall → Peer Support	-3.88 (0.64)	-0.42	.000
Error in Overall Resilience disturbance	18.20 (2.99)	-	.000

Summary

Findings from the relationship between the protective factors of parental and peer support and resilience in physically maltreated adolescents were presented in this chapter. A dual domain and overall resilience models were tested through structural equation modeling. The results from the measurement model, including model fit assessments and specifications made were described above. The model fits were poor and required exploratory factor analysis. The new models only produced moderate model fit. The findings from the two structural models including fit indices and factor loadings were presented in this chapter. This chapter presented findings from group code analysis to analyze gender differences with the focus on females. The findings will be utilized to respond to the hypotheses presented in Chapter 2. Study results to accept or reject study hypotheses will be presented in Chapter 5. Study limitations, implications for practice, and potential future research directions are discussed in the following chapter.

Chapter 5: Discussion

The current study examined resilience in physically maltreated adolescents with a focus on interpersonal protective factors (i.e. parental and peer support). Two models were compared to determine if one demonstrated a better fit. The first model consisted of a two outcome measures (i.e. behavioral and emotional problems). The second model combined the two domains of resilience into one overall outcome measure. Parental and peer factors were found to protect against physical maltreatment in adolescents. The models were a better fit in females. These findings are discussed below, followed by limitations of the current study, implications, and future directions. First, the findings will be discussed with the confirmation of significant and nonsignificant findings and each will be described in more detail organized by hypothesis, results, and discussion. Then, the limitations will be described for the limitations within the dataset and within study procedures. Next, implications will be separated by clinical, policy, and theoretical implications. Lastly, future directions will be proposed with suggestions for future studies.

Summary and Rationale of Study

Physical maltreatment places adolescents at risk for negative behavioral and emotional development (Anderson & Bang, 2012; DuMont, Widom, & Czaja, 2007; Gewirtz & Edleson, 2007; Jain, Buka, Subramanian, & Molnar, 2012; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009; Marsh, 2009; O'Donnell, Schwab-Stone, & Muyeed, 2002). However, not all physically maltreated adolescents exhibit the expected behavioral and emotional problems associated with maltreatment (Doll & Lyon, 1998; Garmezy, Masten, & Tellegen, 1984; Higgins, 1994; Masten, 2007; Rutter, 1985; Wolin

& Wolin, 1993). These individuals are considered to exhibit resilience (Garmezy, Masten, & Tellegan, 1984; Masten, 2012). This study aimed to better understand resilience in physically maltreated adolescents. Research focusing on specific contexts in resilience is necessary to better understand the framework. Understanding the effectiveness of specific protective factors in the context of physically maltreated adolescents provided important additional information to the current resilience framework. This information is important as it was expected that some protective factors may be more effective in minimizing negative outcomes in certain contexts (i.e. physical maltreatment) and/or developmental periods (i.e. adolescence) but not others (Masten, 2006).

Studies focusing on one specific type of maltreatment would benefit the resilience field. Many studies combine multiple types of maltreatment or study sexual abuse separately (Iwaniec, Larkin, & Higgins, 2005). Resilience processes may differ by type of maltreatment as some differences in outcomes have been shown in existing research (Beitchman, Zucker, Hood, DaCosta, & Cassavia, 1992; Claussen & Crittenden, 1991; Desai, Arias, Thompson, & Basile, 2002; Edmond, Auslander, Elze, & Bowland, 2006; Thompson, Arias, Basile, & Desai, 2002). The potential differences in resilience process based on type of maltreatment (i.e. physical maltreatment, emotional maltreatment, neglect, and sexual abuse, etc.) is not clear. By focusing on physical maltreatment, it helps fill in this gap in the literature.

Further, a gap in the literature exists on gender differences in resilience. It is expected that females are more likely to utilize interpersonal protective factors based on previous literature suggesting females are more interpersonally focused than males

(Gilligan, 1982; Ehrensaft, 2005). Females were previously found to be more likely to exhibit emotional problems and less likely to exhibit behavior problems (Achenbach, 1979; Lewisohn, Hops, Roberts, Seeley, & Andrews, 1993; Ostrov & Keating, 2004; Reimer, 2002). This current study examines the gender differences in the specific context of physically maltreated adolescents to help fill in this gap.

This current study will provide information on resilience in the context of physically maltreated adolescence and examine gender differences that will help build a better understanding of resilience. A better understanding of resilience will benefit the counseling field through increasing knowledge of how to capitalize on strengths in physically maltreated adolescents and improving clinical interventions. Resilience theory suggests counselors utilize client's strengths to minimize negative outcomes when faced with difficulties. Counselors working with adolescents would benefit from promoting strengths and resilience to prevent behavioral and emotional problems. Helping adolescents recognize potential protective factors and incorporating it in interventions may help adolescents cope better. Through taking the focus off potential negative effects and towards empowering strengths may give clients the confidence to build resilience. Given the potential benefits for counselors, more resilience research within the counseling field is necessary to fully understand this framework in working with maltreated adolescents.

Summary of Methodology

Structural equation modeling techniques were employed to test the study hypotheses. Two models were hypothesized to explain resilience in physically maltreated adolescents. The first model tested the protective factors of parental and peer support in a

dual domain model of behavioral and emotional resilience. The second model combined the two domains of resilience into one overall resilience domain. Data screening was first conducted to fix issues that may limit the interpretability of the model. The hypothesized models were tested with both genders and between genders to examine any gender differences.

Description of Sample

Over half of the sample (56.9%) identified as White. Approximately 16.8% of the participants that identified as White, also identified themselves as Hispanic. The dataset also contained limitations within ethnic identification as one question asked participants to identify their ethnicity with only providing five options including one "refused/don't know" and did not include options for Latino/Latina or more than one race. A separate question asked the participants if they were Hispanic and provided only two options of Hispanic nationalities and one for "other." Thus, without the option of "more than one race" and other choices of ethnicities, the participants may have felt constricted in their choice.

The sample dataset of adolescents not in out of home care for the current study is less diverse than the full dataset. It is unclear why the children in the dataset included more ethnic diversity. Only 34.1% of the full dataset is White/Non-Hispanic compared to 43.1% of the adolescent sample in this study. A total of 34.9% of the sample in the full dataset identified themselves as Black, whereas only 24.7% of the adolescent sample in this study identified as Black.

The gender breakdown of the sample was provided in Chapter 4. Approximately 60.7% of the sample were female compared to 39.3% males. The sample in the current

study was not equal in terms of gender. The total sample of the full NSCAW dataset was fairly equal in terms of gender (48.6% males versus 51.4% females). In terms of the exclusions of foster care, the excluded participants were fairly equal (52.1% females versus 47.9% males). Thus, the differences in gender may be based on age with a possible oversampling of childhood males and oversampling of adolescent females. A higher population of females than males endorsed being physically maltreated. Prior to excluding non-physically maltreated adolescents, the gender gap was lower with 55.3% females and 44.7% males.

The sample is diverse in terms of age of the adolescents. Diversity ranged from 6.9 to 17.8% of the sample per year of age. Adolescents ranged from 11 to 17.5 years old (M = 13.68, SD = 1.85). No issues are to be expected from the diversity of age in interpreting the results. The lack of ethnic diversity and sample size differences of gender may limit the findings.

Review and Discussion of Key Findings

Results for the data analysis were presented in Chapter 4. The results aimed to answer the study question and to determine if the study hypotheses were supported. The one primary study question was addressed with multiple hypotheses listed below. An overview of significant and nonsignificant findings will be presented first. Following the overview, the hypotheses, results, and discussion will be described in depth below.

Primary study question.

Is the relationship between the protective factors of peer and parental support and resilience in physically maltreated adolescents stronger in females?

Study hypotheses.

The model was expected to be a better fit for females than males. As such, females were expected to be more likely to be influenced by interpersonal protective factors. Females were more likely to exhibit emotional problems and less likely to exhibit behavioral problems. Females were more likely to exhibit resilience.

Model 2 was expected to be a better fit than Model 1. It was hypothesized the combination of the two domains of resilience would produce a better fitting model as females were expected to be less likely to endorse behavioral problems. It was expected that the indicators would adequately measure the latent constructs in both models.

Physical maltreatment was expected to predict emotional and behavioral problems in adolescents. Parental and peer support were expected to predict fewer behavioral and emotional problems. Behavioral and emotional problems were expected to be significantly related.

Overview of findings.

Significant findings supporting hypotheses.

Many of the hypotheses within the study question were confirmed with significant findings. Consistent with the existing literature, physical maltreatment predicted negative emotional and behavioral outcomes. Emotional and behavioral outcomes were significantly correlated suggesting that adolescents endorsing one domain of negative outcomes (i.e. behavioral or emotional problems) were more likely to endorse the other domain of negative outcome. As expected, females were more likely to endorse emotional problems than males.

Parental and peer support were found to protect against emotional and behavioral problems in physically maltreated adolescents. Peer support had a greater influence on

emotional and overall outcomes than parental support. Parental support was more effective in protecting against behavioral outcomes only.

Significant findings rejecting study hypotheses.

Contrary to previous findings, females were more likely to exhibit behavioral problems than males. Females were also less likely to exhibit resilience.

Nonsignificant findings rejecting study hypotheses.

No significant differences were found between Model 1 and Model 2. Additionally, although the model was a better fit for females, the factor loading was only .024, indicative of a weak strength in gender differences. All findings will be discussed in greater detail below.

Gender differences hypothesis.

It was hypothesized that the model will be a better fit for females than males. The interpersonal protective factors were expected to result in a better fitting model for females. Females were expected to be more likely to endorse emotional problems and less likely to exhibit behavioral issues. Females were hypothesized to be more likely to exhibit resilience.

Gender differences results.

The data was a better fit for females than males. Utilizing the group code approach, females were dummy coded to 1. The female dummy code variable resulted in a positive factor loading ($\beta = .024$ for both models) indicating the model was a better fit in females than males. Females were found to rely on interpersonal protective factors of peer support and parental support more than males. Thus, females were more likely to

exhibit resilience using interpersonal protective factors. However, the findings showed a smaller difference than expected.

Discussion of gender differences.

The models involving interpersonal protective factors were a better fit for females. However, due to the low factor loading it could be hypothesized that the connection between females and interpersonal protective factors may not be as strong as previous research suggests. One potential hypothesis is gender role socialization may not be as strong as previously found.

Females were more likely to endorse being physically maltreated. In the sample of adolescent participants that were not in out-of-home-care, more than 60% of that population was females. A total of 222 females endorsed physical maltreatment compared to 138 males. The gender differences in the quantity of physically maltreated participants was not shown to be as great of a difference within the full sample of children and adolescents. A possible explanation for the gender differences for experiencing the risk of physical maltreatment in this sample is unclear. It contradicts the national finding of equal prevalence of physical maltreatment in children and adolescents (Child Welfare Information Gateway, 2015). This could be the result of sampling biases and issues with the database. Gender differences in victimization may occur because of the age of the victim as the higher rate for physical maltreatment in females occurred during adolescence.

Based on the current sample, females were more likely to exhibit emotional and behavioral problems. Approximately 73.2% of females fell in clinical range for emotional

or behavioral problems in at least one outcome measure compared to 60.1% of the adolescent males in the sample.

Females were more likely to endorse emotional problems than males. This is consistent with previous research (Jenkins, Goodness, & Buhrmester, 2002; Nolen-Hoeksema & Girgus, 1994; Wade & Cairney, 2002). Percentage of adolescent females in the sample meeting criteria for an emotional disorder ranged from 10.1% to 34.2% depending on the scale. On the same scales, males ranged from 5.4% to 33.1% meeting clinical range. On the depression scale, approximately three times the percentage of women endorsed meeting criteria for depression (16.2%) than males (5.4%). This supports previous findings that females are more likely to develop emotional problems than their male counterpart following maltreatment (Gore-Felton, Koopman, McGarvey, Hernandez, & Canterbury, 2002; Jenkins, Goodness, & Buhrmester, 2002; Nolen-Hoeksema & Girgus, 1994; Wade, Cairney, & Pevalin, 2002). The finding suggest that females are more likely to internalize their trauma than males. It is suggested females may internalize and blame themselves for the trauma. The higher prevalence rates of emotional disorders in maltreated females validates existing research.

Contrary to past research on gender differences and outcomes, females were also more likely to exhibit behavioral problems (Achenbach, 1979; Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993; Reimer, 2002). Almost half of females fell in clinical range for externalizing disorders on both the self-report (YSR) and parental-report (CBCL) compared to approximately one-third of males (i.e. 30.4% on YSR externalizing subscale, and 37.8% on CBCL externalizing subscale). Based on prior research studies, it is widely considered that males are more likely to exhibit behavioral problems than

females (Hartman, Turner, Daigle, Exum, & Cullen, 2009; Jonson-Reid & Barth, 2000; Ostrov & Keating, 2004). Thus, physical abuse places female adolescents at a greater risk for adjustment problems than males.

More research is necessary to examine the possibility that females are more likely to exhibit externalizing behaviors than previously found. One group of researchers studying resilience longitudinally suggested females may be more likely to initially internalize trauma which results in externalizing problems if left untreated (Maschi, Morgen, Bradley, & Hatcher, 2008). This explanation may be worth investigating further as the current study did not examine the length of time since the maltreatment incident(s), and it did not study resilience longitudinally. This hypothesized explanation also supports the concept of developmental cascades. Impairment in emotional functioning may contribute to impairment in behavioral functioning. Thus, females may be more vulnerable to the effects of physical abuse, and the vulnerability to one disorder may contribute to the development of additional mental health disorders.

Behavioral disorders in females following physical abuse has also been attributed to social learning theory. Gavin and Porter (2015) explained that Bandura had suggested no gender differences were to be expected when he developed social learning theory. However, it has primarily been studied only in males in the contexts of learning aggressive behaviors and physical abuse. They suggested the theory should be studied further in females (Gavin & Porter, 2015). High impulsivity, arrogance, deceitful interpersonal style, and peer rejection have been linked to higher aggression in females (Urben, Habersaat, Suter, Pihet, Ridder, & Stephan, 2016). Idealization of females that exhibit aggressive behaviors, and cultural acceptance in females have also been used to

explain increased female aggression (Gavin & Porter, 2015). Additionally, it has been suggested that females may use aggression to gain social influence. Females may use coercive actions to get desired reward of increased social identity (Gavin & Porter, 2015). Female aggression is an understudied topic of physical abuse risks and thus, little is known on the issue (Gavin & Porter, 2015). The unexpected finding in the current study of an increased risk for behavioral issues in females suggests that adolescent behavioral resilience is not yet fully understood.

Another interesting finding on the internalizing scales is that parents were more likely to suggest the adolescent experiences emotional disorders than the adolescents' self-report. This finding occurs in both females and males.

The findings on outcomes suggest females are less likely to exhibit resilience. This contradicts previous findings that females were more likely to exhibit resilience (DuMont, Widom, & Czaja, 2007; Sun & Stewart, 2012). It is possible that the difference in sample size of females and males in this current study could have affected the results.

Summary of gender differences.

Females were more likely to exhibit emotional and behavioral problems than males, and less likely to exhibit resilience. More research is needed to explain the contradictory finding of females exhibiting behavioral problems at a higher rate than males. Gender differences were not as strong as expected. Females may not be as prone to use interpersonal protective factors compared to males as suggested by previous research. Caution should be taken when interpreting these findings as the sample size of females versus males differed substantially. The strength of the gender differences

findings did not differ between the two competing models. Results of the comparison between the two competing models are outlined below.

Comparison of competing models.

It was hypothesized that Model 2 consisting of one overall domain of resilience would be the best fitting model. It was hypothesized combining the two domains of resilience would produce a better fitting model as females are expected to exhibit fewer behavioral problems. The inclusion of dual domains of resilience is expected to reduce the strength of the model as the path to behavioral problems should be weaker.

Results comparing competing models.

The null hypothesis is supported. Measuring resilience in dual domain versus in one overall domain did not have a significant impact on the data. Model 2 demonstrated a slightly better fit with lower RMSEA and SRMR indices (RMSEA = 0.057 in Model 2 and RMSEA = 0.062 in Model 1; SRMR = 0.06 in Model 2 and SRMR = 0.07 in Model 1). Model 2 exhibited slightly better fit incremental fit indices (CFI = .93, NFI = .87, GFI = .90) compared to Model 1 (CFI = .91, NFI = .86, GFI = .89). Model 1 exhibited a slightly lower AIC value (15479.56 vs 15556.54) suggesting a slightly better fit in comparison. The model fit findings suggest the differences are trivial and mixed on which model is a better fit. One model was not a better fitting model than the other model.

Discussion of competing models.

The method of measuring outcomes (dual domain versus one overall domain) did not impact the model strength. The debate mentioned in Chapter 2 on dual domain versus a unidimensional measurement of resilience focused on whether measuring resilience in

separate domains would fully capture the concept of resilience. Another consideration within the debate is whether a unidimensional measurement would be too stringent and would underestimate the quantity of resilience as the definition is more narrowly defined. The high-risk level of physical maltreatment heightened this concern. Measuring resilience within two separate dual domains did not impact the model fit. Thus, resilience within physically maltreated adolescents as indicated by lower amounts of behavioral and emotional issues may be measured either way without loss of measurement strength.

The measurement of resilience within dual domains has the additional benefit illustrating the effectiveness of the protective factor for reducing behavioral problems and if it has a change in effectiveness for emotional problems. This information helps clarify which protective factors promote each specific domain of resilience. Through the dual domain model of resilience, information regarding the strength of the protective factors was shown. Specifically, it was found that parental and peer support showed a stronger relationship with emotional resilience than behavioral resilience. The two protective factors accounted for a higher amount of variance in emotional problems (i.e. self-report and parent-report emotional problems [YSR and CBCL internalizing subscales], depression, and anxiety; 37.6%) than behavioral problems (i.e. self-report and parent-report behavioral problems [YSR and CBCL externalizing subscales]; 18.8%).

The ability to compare the two models provided some additional benefits. The protective factors of parental and peer support accounted for a total of 35.8% of the variance. This percentage is lower than the amount of variance accounted for by emotional outcomes. The factor loadings of parental support were lower in the overall

model than both the emotional and behavioral pathways. The error variance was lower in the overall path analysis.

The primary hypothesis may have not been supported due to the unexpected finding that females were more likely to exhibit behavioral problems than males. Thus, the path to behavioral outcomes was not weaker as expected.

Model fit hypothesis.

It was hypothesized that the indicators adequately measure the latent constructs of peer support, parental support, behavioral resilience, and emotional resilience. Emotional and behavioral resilience, as measured by fewer emotional and behavioral problems, adequately measures the concept of overall resilience in the second model.

Model fit results.

The indicator variables did not produce a good fitting model. Issues within the instruments required revisions during data screening and revisions to the measurement model. The initial analysis indicated a poor model fit for the Model 1 measurement model ($\chi2$=400.91 [*df* = 47], *p* = .000, RMSEA = 0.14), and Model 2 ($\chi2$ = 444.96 [50, *N* = 374], *p* = .000, RMSEA = 0.15). The respecified models produced borderline to poor fit RMSEA value of 0.09 for Model 1 and Model 2. Ultimately, an exploratory analysis was necessary prior to the confirmatory structural path analysis. The final models were adequate fitting models and interpretable. However, a better fitting measurement model with a non-significant chi-square value and higher incremental and parsimonious fit indices may have improved the hypothesis testing within the structural models. In terms of reliability of instruments, peer support showed adequate levels of reliability within each variable, but found very low level of reliability between the three variables (α =

.20). Two manifest variables needed to be removed from the model due to the unacceptable reliability between the manifest variables. The latent variable of peer support had to be created from items from one instrument in order to avoid the model fit issues.

Four outcome indicator variables showed very high levels of reliability: CBCL externalizing subscale (α = .99), CBCL internalizing subscale (α = .99), CDI depression scale (α = .97), and the TSCC trauma scale (α = .99). These variables may have resulted in multicollinearity issues. However, changes to the variables would have to be conducted blindly without knowledge of the items. These changes could not be theoretically justified.

The original models showed poor fit to the data. The initial analysis indicated a poor model fit for both the Model 1 and Model 2 measurement model with low incremental fit indices and RMSEA values that are indicative of poor fit (Bentler, 1992). All three variables for peer support exhibited low levels of variance explained by each factor with the highest value coming from self-report of peer support (LSDQ; R^2 = .28). The parental report of externalizing and internalizing behaviors (CBCL) also showed low reliability (R^2 = .28 and R^2 = .18). Additionally, multicollinearity within the outcome variables of CBCL internalizing and externalizing subscales, depression (CDI), and trauma (TSCC). Variable manipulation of outcome variables was not feasible as the identification of item content was unknown.

The respecified models with additional error covariances with theoretical and statistical basis still only demonstrated a borderline to moderate fit. The incremental fit indices improved. The RMSEA values were close to the cutoff criteria of 1.0 that

indicates a poor fit (Browne & Cudeck, 1992). The high RMSEA presented a serious issue as it is one of the primary fit indices used in the literature to support model fit. Thus, exploratory factor analyses for both models were necessary to improve model fit.

The exploratory factor analysis produced a better fitting model. Model 1 and 2 were moderate fitting models and interpretable. The RMSEA values were closer to the .05 criteria indicative of a good fitting mode (MacCalllum, Browne, & Sugawara, 1996). The SRMR values were lower than the value of 0.08 indicative of a good fit (Hu & Bentler, 1999). The incremental fit indices were above the .90 cut-off suggested by some experts (Hu & Bentler, 1992), but were slightly below the .95 value suggested by Hancock and Mueller (2006). The chi-square was still large and significant. However, the chi-square is vulnerable to sample size effects and is often statistically significant (Kenny & McCoach, 2003).

Discussion of model fit.

Creating a good fitting model with these constructs from this dataset posed several difficulties. Following exploratory processes of attempting several alterations to the model, the final best fitting models were only moderate to good fitting models. Although the models were interpretable and adequate, methodological issues impairing the ability to measure the intended constructs may have limited its ability to illustrate the effectiveness of the protective factors and fully answer the structural based hypotheses. It is possible that the hypothesized models were not as good of models as expected, or it is possible that limitations within the dataset and measurement models resulted in the lack of as strong of findings as expected. However, resilience was an adequate enough fitting model to determine that peer and parental support protect against maltreatment.

Physical maltreatment effects.

It was hypothesized that physical maltreatment will predict emotional and behavioral problems.

Effects of physical maltreatment results.

The risk factor of physical maltreatment significantly predicts emotional and behavioral outcomes. Physical maltreatment was positively associated with behavioral problems (r^2 = .15, p = .000), emotional problems (r^2 = .14, p = .000), and overall resilience (^{r2} = .16, p = .000) in the mixed gender adolescent sample. The majority of the sample of physically maltreated adolescents (68.9%, n = 269) met criteria for a behavioral or emotional disorder as described in Chapter 4. Physical maltreatment significantly predicts emotional and behavioral problems.

Discussion of physical maltreatment effects.

Physical maltreatment prediction of negative outcomes is consistent with the existing literature. Physically maltreated victims have previously been shown to have higher rates of emotional and behavioral problems (Anderson & Bang, 2012; Cicchetti & Toth, 1998; DuMont, Widom, & Czaja, 2007; Gewirtz & Edleson, 2007; Kaplan, Pelcovitz, & Labuan, 1999 Jain, Buka, Subramanian, & Molnar, 2012; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009; Marsh, 2009; O'Donnell, Schwab-Stone, & Muyeed, 2002). Adolescents have been found to have higher anxiety levels, depression, and conduct problems following maltreatment (Gewirtz & Edleson, 2007; Jain, Buka, Subramanian, & Molnar, 2012; Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009; Salami, 2010; Ward, Martin, & Distiller, 2007). Thus, physical maltreatment is considered a risk factor in the resilience process.

Relationship between behavioral and emotional problems.

The hypothesis presented in Chapter 2 predicted a significant relationship between emotional and behavioral outcomes.

Relationship between behavioral and emotional problems results.

Behavioral and emotional outcomes showed a significant positive correlation (r^2 = .62, p = .000). The Cronbach's alpha for the six indicator variables is .83, suggestive of a high correlation between the outcome manifest variables.

Discussion of relationships between behavioral and emotional problems.

This finding supports the theory of developmental cascades. Developmental cascades suggest problems in one area of development will result in negative impacts for other areas of development (Cicchetti, & Toth, 1994). Thus, it could be hypothesized that physical maltreatment may result in the development of a negative outcome, such as depression. The associated problems in emotional functioning may result in negative consequences for other outcomes, such as behavioral issues. For example, issues with emotional problems, such as anxiety and depression, may cause the individual to seek out risk-taking behaviors or acceptance from anyone including negative peers. The high prevalence of participants meeting criteria for an emotional or physical disorder under more than one variable is additional evidence for this finding.

Further, ecological transactional theory supports this finding based on the transactional component of the theory. The transactional component suggests the individual and environment transact with one another (Cicchetti & Rizley, 1981). This transaction may result in developmental cascades, and/or the correlation between the two outcome variables. The development of one issue may negatively impact the individuals'

interaction with the environment (Cicchetti & Curtis, 2006; Masten & Cicchetti, 2010; Masten, Roisman, Long, Burt, Obradovic, Riley, Boelcke-Stennes, & Tellegen, 2005). For example, the development of an emotional issue may increase their irritability or interpersonal functioning. This internalization causes a person to develop more aggression. Conversely, one with behavioral problems may start to internalize reactions from the environment, potentially resulting in negative emotional side effects (Moilanen, Shaw, & Maxwell, 2010). For example, one study supporting high comorbidity between psychiatric disorders in individuals who were maltreated as children found this population developed alcohol and substance abuse after they had already met criteria for depression (Widom, DuMont, & Czaja, 2007). This finding was also supported in a longitudinal study of emotional and behavioral problems among maltreated children (Rogosch, Oshri, & Cicchetti, 2010). Children initially endorsed internalizing symptoms. Increased rates of behavioral problems and social competence were found later in adolescence.

Parental support hypothesis.

Parental support was expected to predict fewer emotional and behavioral problems in physically maltreated adolescents.

Parental support results.

Parental support was less effective than peer support in supporting overall resilience (Γ = -.37) and reducing emotional problems (Γ = -.38) in physically maltreated adolescents. It was more effective than peer support in minimizing behavioral problems (Γ = -.37).

Parental support discussion.

Parental support did protect against emotional and behavioral problems in adolescents. Parental support provides a supportive and caring relationship in which the adolescent may feel safe and secure. It was hypothesized that parental support would be especially protective for this population given that having one parent to feel safe in a chaotic and unsafe environment, such as a physically maltreatment environment, the adolescent may be more likely to be resilient. Maltreating parents have been found to interact less with children and show less warmth (Burgess & Conger, 1978). Thus, it was expected that having one supportive and involved parent would help protect the adolescent against negative outcomes. Previous studies had found parental support from at least one caregiver significantly moderated risk in physically maltreated victims (Hartman, Turner, Daigle, Exum, & Cullen, 2009).

However, the findings weren't as strong as expected with peer support acting as a more effective protective factor in overall resilience and behavioral resilience. One potential explanation is the use of self-report instruments. Self-report may present issues in biases and validity. For example, it could be hypothesized that their perceptions of parental support may differ than the actual support. For example, if they only have the unsafe, perpetrator of physical maltreatment as the other parent to compare the relationship to the non-perpetrating parent, they may rate the parental support higher than the actual support.

It has been suggested that the relationship of parental support may be more complex. For example, one study found maternal mental health mediated the effect of parenting effectiveness on children's externalizing behavior (Levendosky, et al., 2003). Parental sensitivity as a form of parental support to be an effective protective factor

among physically maltreated children (Haskett et al., 2008). Type of parental attachment may be a stronger predictor than the broad variable of parental support. Thus, a closer examination on the aspects of parental support and the complexity of the variable may produce stronger results.

The lack of stronger results may also be accounted for by the developmental period and the push for autonomy by the adolescent. Some researchers suggest the parent-child relationship is at its worst during adolescent developmental period and the strained relationship may impact the significance of the protective factor (Ahern, Ark, & Byers, 2008; Jain, Buka, Subramanian, & Molnar, 2012). It could be hypothesized that physically maltreated adolescent victims may be less likely to use their parents for emotional support to cope with the trauma due to the parents' likely involvement in the trauma as either as victim or perpetrator.

Peer support hypothesis.

Peer support was expected to predict fewer emotional and behavioral problems in physically maltreated adolescents.

Peer support results.

Peer support did predict fewer emotional and behavioral problems in physically maltreated adolescents. A few key findings are noted. Specifically, in the overall model, peer support was a better predictor of overall resilience than parental support. In this model the standardized factor loading for peer was .42 (Γ =-.42) compared to .37 (Γ = -.37). Higher negative loadings suggest greater impacts on positive resilience. However, in the dual domain model, peer support was only a better predictor against emotional problems. The factor loading from peer support to emotional problems was -.43 and the

loading from parental to emotional was -.38. It was less effective in reducing behavioral problems (Γ = -.18 vs. Γ = -.37).

Peer support discussion.

Peer support as a protective factor was chosen as an interpersonally related factor for its connection to the adolescent development period. Peer support did predict emotional and behavioral resilience. This is consistent with existing research suggesting maltreated youth that report higher levels of peer support are less likely to exhibit externalizing and internalizing behaviors (Crosnoe, Elder, & Jr., 2004; Jain, Buka, Subramanian, & Molnar, 2012; Marsh, 2009; O'Donnell, Schwab-Stone, & Muyeed, 2002; Salami, 2010; Sun & Stewart, 2012).

A growing peer influence occurs during adolescence and an increased importance of friendships is associated with this period (Kazdin, 2000). It is suggested physically maltreated children turn to their peers to cope with the maltreatment (Bolger et al., 1998).

Further, it is suggested adolescents spend more time with peers than their parents during this period (Crosnoe & Elder, Jr., 2004). This could explain why peer support was found to be a more effective protective factor than peer support in this study. Additionally, peer support has been linked to higher self-esteem among physically maltreated children (Bolger et al., 1998). The higher self-esteem may indirectly buffer against emotional disorders.

The low reliability between peer support variables (i.e. self-report, parental-report, and lack of negative peers) indicates that the peer support variable is more complex. The low correlation between self-report and parental-report could indicate either that the parent is more removed from the child's life, or that their perceived peer

support may differ from actual peer support. The low reliability between self-report of peer support and lack of deviant peers suggests that adolescents endorsing higher levels of peer support may include a combination of those with positive peer support and those with negative peer support. Peer support with deviant peers would most likely result in negative outcomes and not function as a protective factor. Pressure to "fit in" socially increases during adolescence, and the involvement with negative peers may increase risk-taking behaviors (Neff & McGehee, 2010). Thus, the complexity of the factor should be examined further in future studies.

Summary.

The hypothesized models found parental and peer support to effectively protect against physical maltreatment. However, it did not account for a large portion of variance and was only a moderately good fitting model. The findings weren't as strong as expected. The lack of expected strong findings suggest the hypotheses are not fully supported and other models may explain resilience in physically maltreated adolescents better, or may be a result of methodological issues within the dataset that caused model fit issues. If the reason for the moderate level of model fit is because the model doesn't fully explain resilience in physically maltreated adolescents, potential future studies described later in this chapter may provide a better understanding of resilience. The lower amount of variance accounted for by the protective factors in behavioral resilience likely negatively impacted the model fit. More exploration into this finding is necessary to produce a better fitting model.

The model was a better fit for females than males. The finding was not as strong as expected. It is possible that gender differences were overestimated. It is suggested

gender role socialization is not as influential and differences between genders are not as rigid as previously thought. Another explanation is the unexpected finding of higher rates of externalizing disorders in females may have affected the model.

Implications

This study provided further knowledge on the context of resilience between interpersonally related protective factors and physically maltreated adolescents. The gender differences found in the model provide implications for the knowledge and use of resilience framework. However, considering the limitations within the current study, the implications should be interpreted with caution.

Clinical implications.

A framework for resilience is important for the counseling field. Resilience reminds counselors to focus on strengths to build resilience and overcome risks. It provides children and adolescents with the possibility of success and hope following victimization. Clinical implications are presented for both mental health and school counselors. Mental health counselors can work with adolescents, individually and in groups, to build resilience through therapeutic interventions focusing on resilience and the promotion of parental and peer protective factors. A focus on school counseling implications is also necessary as adolescents spend the majority of time in schools. School counselors can promote resilience in individual or group sessions, and through the development of programs.

Peer support was found to be more effective in producing emotional and overall resilience. Thus, families, counselors, and others working with adolescents must give more consideration to the importance of peer support. Counselors, both school and

mental health, should work with the adolescent to build a positive peer support system. Similarly, obstacles to peer support systems and "fitting in," such as cliques and bullying should attempt to be minimized. School programs may benefit from developing peer support groups focusing on maltreatment.

School programs could be developed to focus on positive interpersonal support. In addition to programs focusing on building peer support, programs and techniques to build parental support are recommended. School counselors and mental health counselors should assist adolescents to build a positive parental relationship to help them cope with the trauma. Counselors can assist parents in developing the skills to effectively support the adolescents. Considering parental support is more effective in reducing behavioral problems, parents may learn techniques on how to minimize their child's risk-taking and acting out behaviors. The time spent by the caregiver and adolescent was found to be complex as the variable showed low correlation with other parental support variables and not predictive of resilience. Thus, counselors can help parents determine how to effectively spend time with their adolescent to promote resilience. The implications are of importance to school counselors as they have access to working with both parents and peers and can develop more individualized programs for physically maltreated adolescents. School and mental health counselors, as well as families should consider gender of the adolescents and how that may affect the ways to promote resilience in physically maltreated adolescents.

The results indicated that parents were not as effective at protecting against emotional disorders. One implication is that parents need to be taught how to more effectively connect to their adolescent and provide emotional support. The book, "*The 5*

Love Languages of Children" may be suggested to parents to help them connect to their adolescent based on that adolescent's individual needs and way he/she communicates (Chapman & Campbell, 2012).

Additionally, counselors should be aware that females may be more vulnerable to the effects of physical maltreatment. Females may be more likely than originally thought to develop behavioral problems. Thus, counselors should develop interventions and techniques focused on the prevention of females, as well as males, from engaging in high risk behaviors. Peer rejection has been suggested to place females at higher risk for aggression and behavioral disorders (Gavin & Porter, 2015; Rice, Merves, & Srsic, 2010; Urben et al., 2015). Given that social media allows for more anonymity and results in increased bullying behavior in adolescents and the negative consequences resulting from bullying including peer rejection, school and mental health counselors should work towards reducing bullying and cognizant of potential online bullying from social media (Gavin & Porter, 2015). Counselors should teach parents how to effectively monitor their adolescents' social media and school systems should be aware of online bullying and take necessary steps to intervene when issues are found.

Policy implications.

This study illustrated the vulnerability of physically maltreated female adolescents to negative outcomes. Approximately 66.8% of the physically maltreated female sample met criteria for a behavioral disorder on at least one scale and 48.7% met criteria for an emotional disorder on at least one of the four emotional outcomes measures. Females were at a higher risk for behavioral disorders than expected. It demonstrated the need for policies to improve resilience in physically maltreated

adolescents. The current study includes implications for policy makers need to develop or support programs to assist families better support their children and promote positive peer relationships.

Theoretical implications.

The current study suggests parental and peer support are protective against physical maltreatment in adolescents. The findings were not as strong as expected. This suggests additional important protective factors may exist and the resilience process may be more complex in this population. It may mean that adolescents need to possess more than two protective factors to effectively reduce behavioral and emotional problems.

Peer support had a greater impact on reducing negative emotional and overall outcomes than parental support. In adolescents, it can be suggested that individuals turn to their peers more than their parents to cope with difficult events. Utilizing peer support to cope with physical maltreatment may make adolescents less likely to become depressed, anxious, or develop post-traumatic symptoms. The finding that parental support was more effective at protecting against behavioral problems suggests peers may negatively influence the adolescent and result in risk-taking behaviors or other behavioral problems. Parental support may create an environment to positively influence the adolescent to not engage in risk-taking behaviors or other behavioral problems. It is possible adolescents turn to their parents less than peers to process and cope with the traumatic event. Adolescents may not feel as comfortable turning to parents to talk freely due to their closeness to the situation. Thus, it may explain the lower impact of parental support on emotional resilience.

Females were found to be more likely to endorse behavioral and emotional problems, and less likely to exhibit resilience. One implication from these findings is that females may be more vulnerable to the effects of physical maltreatment. Thus, we should increase the focus on females and physical maltreatment. Future studies should investigate the effects of physical maltreatment on females and the resilience process in female adolescents.

The lack of strong findings on gender differences indicates that differences between genders may not be as rigid anymore. Children and adolescents may not be as strongly gender socialized as suggested in the past. Gender characteristics may be more fluid and have less dichotomy.

The finding that females may be more likely to exhibit behavioral problems than males contradicts previous studies. This finding illustrates the need for more attention and research on female aggression. Female aggression may be a result of the increased vulnerability of females to the effects of physical abuse. Females may develop emotional problems that may result in the development of behavioral disorders as suggested by the concept of developmental cascades. Rice, Merves, and Srsic (2010) suggested that the occurrences of physical altercations in adolescent females have more of an emotional undertone and deeper meaning behind the altercation than males. The same article suggested behavioral problems in females may result from peer rejection. Peer rejection and underlying emotional problems may help explain the higher risk of behavioral problems found in the current study.

The significant relationship between emotional and behavioral problems indicates that developing one type of problem may put the adolescent at risk for other problems.

Thus, it is important to prevent adolescents from developing any emotional or behavioral problem. The prevention of the development of one disorder helps the symptoms not snowball into exponentially larger effects on development and the development of additional disorders.

The secondary data analysis also produced implications regarding widely used measures. The instruments measuring behavioral and emotional outcomes, including CBCL internalizing and externalizing subscales, CDI, and TSCC, indicated a high correlation between the items within each instrument. The high correlation may imply that the population of physically maltreated adolescents may have answered each item similarly. Thus, it may result in validity issues of the instruments in this population. Additionally, the parental-report instruments included in the study (parental-report of adolescent peer support and CBCL internalizing and externalizing subscales) demonstrated moderate to low reliability with the self-report instruments. The lack of correlation between the instruments suggests biases within either the parental-report or self-report instruments. Thus, more than one type of report should be the standard to evaluate emotional and behavioral problems in physically maltreated adolescents.

Limitations

Several limitations may exist in this study. Some limitations result from the difficulty in studying resilience given the complexity and ambiguity of the construct and measurement (Luthar, Cicchetti, & Becker, 2000). Other limitations exist due to this study's dataset, the design of the study, and analysis. Dataset and study procedure limitations will be outlined below.

Dataset limitations.

The dataset was chosen based on the large sample size and the relevant variables to this study on physically maltreated adolescents. However, the dataset was only inclusive of children and adolescents that have had contact with Child Protective Services (CPS). This may limit the generalizability to the national maltreated population; many of which have not had contact with CPS.

As discussed earlier in the chapter, the diversity of the sample needs improvement and limits the interpretation of the findings. The sample was lacking in ethnic and gender diversity and may indicate sampling biases within the dataset. It may limit the generalization of the findings from the current sample. The findings are also limited by the large gap in sample size between females and males. The difference in sample size between the genders may cause methodological issues in accurately comparing the two genders.

Additional limitations exist with utilizing secondary datasets. By utilizing a large national dataset, I did not have control over the variables and research methods. One must trust the researchers to minimize biases or other confounding variables. The dataset failed to include some questions and measures that I may have chosen to provide greater insight on resilience in physically maltreated adolescents. For example, more items on parental and peer support were needed to examine the complexity of the constructs and provide more options to improve the construct during model respecification and exploratory factor analysis. The low reliability between the peer support instruments presented difficulty in creating a good fitting model. Issues with the items from the Loneliness and Social Dissatisfaction Questionnaire (LSDQ) include more than one item asking the same question, but inversely, some items directed more towards children than adolescents (i.e.

inquiring about how well one plays with others). Within the parental involvement instrument, a number of items asked about activities that may not be associated with positive parental involvement or may only be relevant to some populations (i.e. time spent arguing may be negatively associated and time spent shopping may only be relevant to higher socio-economic status participants).

Item content for the outcome measures in the current study was not listed in the dataset's codebook due to copyright laws. Without item content of the outcome measures, it presented additional obstacles in creating good fitting models. The items were highly correlated, but without item content it was not ethical to remove items from the model. Ultimately, the items did not create great fitting models. More variables were necessary to measure the constructs appropriately.

Study procedure limitations.

Another limitation is the difficulty of studying one category of maltreatment. Many adolescents may be victimized by multiple types of maltreatment. Sample size requirements restricted the removal of participants indicating multiple types of maltreatment as the sample size would be too small to conduct structural equation modeling analyses. Therefore, physical maltreatment could not be isolated from comorbid types of maltreatment (i.e. emotional maltreatment, physical neglect, sexual abuse, etc).

Sample size requirements also influenced the method of analysis for gender differences. Dummy group code analysis was chosen over group means approach to analyze gender differences due to the need to keep the sample size intact. A larger sample

size would have allowed for testing for gender differences through the group means approach.

Finally, most instruments included in the model were self-report measures. More than one type of report is recommended for validity reasons. Self-report instruments may have issues as the person's perception may not always be accurate, or their answers may be biased. The variables included the parental-report CBCL instrument. The instrument demonstrated reliability issues with the self-report instruments. The explanation for this finding is not clear, but illustrates the importance of multiple types of reports to maintain accuracy. Teacher-report instruments were also not able to be used in this study due to missing data issues.

Future Research

The current study highlighted several gaps in the research. Future directions for research on resilience are provided below. Potential directions include further examination of the complexity of peer and parental support protective factors, different types of maltreatment and resilience domains, additional potential protective factors, and a better examination of resilience in the context of ethnic and socioeconomic backgrounds. Potential research studies that the researcher can conduct as follow-up studies as well as potential future research directions for the field are presented below. Overall, this study created a good foundation to direct future research on the framework of resilience. This study may influence the work in the area through highlighting the vulnerability of physically maltreated females. Limitations in the study design including issues with widely-used instruments (i.e. CBCL, Children's Depression Inventory, and Trauma Symptom Checklist for Children) in maltreated adolescents and the lack of

reliability in parental-report instruments with parents of physically maltreated adolescents may lead to interesting future studies.

First, further research on the complexity of the factors is recommended. It is important to understand what aspects of a factor is important for its effectiveness as a protective factor. The complexity of parental and peer support should be examined to fully understand a protective factor and the context in which certain aspects may be more protective than others. The relationship between type of peer influence (i.e. positive or negative) and peer support needs additional research. For example, one potential research study to further examine the relationship between type of peer influence and peer support, would be to test the model with peer support as a protective factor utilizing the self-report variable while controlling for lack of deviant peer affiliation.

Additionally, the time spent with a caregiver variable was negatively related to resilience and exhibited low reliability to the other parental support manifest variables. A potential future study could examine the relationship of each item to determine if specific types of activities with parents were more likely to result in building resilience. Items in this measure included activities such as religious events, shopping, doing homework, and playing sports that may be measuring other constructs (e.g. effect of religion, socio-economic status (SES), parental monitoring, or sport activities). Given that the variable produced unexpected results in predicting negative outcomes, future studies examining these constructs may provide more information on resilience.

Similarly, a future study could look further into the two parental support variables that produced relatively low factor loadings and variance in the parental support measurement model. The two items asked: (a) “My caregiver doesn’t seem to have

enough time for me," and (b) "My caregiver doesn't seem to know how I feel about things." A qualitative study examining parental support and physically maltreated adolescents may be better suited to study this finding further.

Overall, more insight on the influence of self-report as a measure for parental and peer support would be useful to better understand these protective factors.

The types of maltreatment deserve further examination. As discussed in Chapter 2 and earlier in this chapter, the type of resilience may impact the resilience process. It would be beneficial to test these two current models with other types of maltreatment (i.e. emotional maltreatment or neglect) as the risk factor. Separating the type of maltreatment and removing cases with multiple types of maltreatment would be beneficial to the understanding of resilience within the maltreatment context. Similarly, a future study utilizing a group code analysis or group means approach separating the types of maltreatment into groups would provide insight as to whether a difference exists between maltreatment types. The same analysis approach could be utilized to determine if any group differences exist between children and adolescents.

Although the current study found parental and peer support to be protective, it did not account for a large amount of variance. Thus, there is still limited information on the effects of protective factors in the resilience process of physically maltreated adolescents. Additional variables should be examined as protective factors. Additional factors should be chosen from multiple levels or systems based on ecological-transactional theory which suggested factors should exist within multiple levels. Thus, future research should include factors from the ontogenic, microsystem, exosystem, and macrosystem. Additional examples of potential protective factors that were not included in this study

are: self-esteem, teacher support and school characteristics, neighborhood support, support from other community members, and societal laws/regulations.

It is also possible that the quantity of protective factors needs to be higher than two factors to effectively protect against risks. Future research could explore adding factors to determine if adolescents need to possess more than two protective factors to minimize negative outcomes. Another possibility is that the model was missing additional salient protective factors. More research is necessary to determine the most salient protective factors in this context. Exploratory factor analysis of various potential protective factors can help determine if the model is missing a salient factor necessary to minimize negative outcomes.

The current study also only examined two domains of resilience. Given the current study's unexpected findings of higher rates of behavioral problems in females than males, future studies should examine if gender differences exist in other domains of resilience (e.g. social or academic resilience). Additional domains of resilience could be added to the models used in the current study.

One interesting finding that could use further exploration is the higher rates of behavioral problems in females. Little is known to explain this finding that contradicts a large portion of the existing literature. One potential study is to utilize longitudinal methods to determine if the amount of time since the maltreatment incident(s) affects the prevalence rate of behavioral problems in females. Another study could look more in depth of the types of behavioral problems. The study could be based on the current study with the exception that the latent variable of behavioral outcomes could be measured by multiple items that define different types of behavioral problems (i.e. attention problems

or delinquency) to gain a closer look at the types and symptoms of behavioral issues in females. The findings would illustrate the types of behavioral issues females are more likely to endorse.

Finally, future studies should focus more on difference in the current study's model due to ethnicity or socioeconomic backgrounds. The current study did not examine these issues further due to sample size restrictions. It would be beneficial to study multiple models with the sample of each model consisting of only one type of ethnicity. Similar to the studies suggested above for types of maltreatment, a group code or group means approach could be employed to determine if any differences exist. It would be expected that a further exploration of diversity would lend to model differences and additional beneficial information.

Conclusions

The current study examined the protectiveness of parental and peer support against physical maltreatment in adolescents. The study focused on the constructs of parental and peer support on behavioral and emotional problems in physically maltreated adolescents. The study hypotheses were tested using structural equation modeling techniques. The results from this study indicate parental and peer support protect against behavioral and emotional problems in physically maltreated adolescents. The model was a better fit for females than males. The results indicated females were more likely to endorse behavioral and emotional problems. This current study contributes important implications and knowledge to the current resilience framework. Clinically, the inclusion of peer and parental support in counseling techniques and school programs is supported by the findings. The additional vulnerability of females to the effects of maltreatment and

higher likelihood of behavioral problems is noted in the findings. The issues with model fit of the measurement model may result from limitations within the study dataset or may stem from other alternative models that better fits. This study provides directions for future research and suggestions for future studies that will help build the resilience framework in the counseling field.

References

Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist/4-18 and 1991 Profile*. Burlington, VT: University of Vermont Department of Psychiatry.

Afifi, T. O., & MacMilan, H. L. (2011). Resilience following child maltreatment: a review of protective factors. *Canadian Journal of Psychiatry, 56*(5), 266-272.

Ahern, N. R., Kiehl, E. M., Sole, M. L., & Byers, J. (2006). A review of instruments measuring resilience. *Issues in Comprehensive Pediatric Nursing, 29*(2), 103-125. doi: 10.1080/01460860600677643

Achenbach, T.M. (1979). The child behavior profile: an empirically based system for assessing children's behavioral problems and competences. *International Journal of Mental Health, 1*, 24-42.

Achenbach, T. M. (1991a). *Manual for the Youth Self-Report and 1991 Profile.* Burlington: University of Vermont, Department of Psychiatry.

Achenbach, T. M. (1991b). *Manual for the Child Behavior Checklist/4-18 and 1991 Profile*. Burlington, VT: University of Vermont Department of Psychiatry.

Achenbach, T. M., & Edlebrock, C. (1978). The classification of child psychopathology: A review and analysis of empirical efforts. *Psychological Bulletin, 85*, 1275-1301.

Ahern, N., Ark, P., & Byers, J. (2008). Resilience and coping strategies in adolescents. *Paediatric Nursing, 20* (10), 32-36. doi: 10.7748/paed2008.12.20.10.32.c6903

Ai, A. L., & Park, C. L. (2005). Possibilities of the positive following violence and trauma: informing the coming decade of research. *Journal of Interpersonal Violence, 20*(2), 242-250. doi: 10.1177/0886260504267746

Alink, L. R., Cicchetti, D., Kim, J., & Rogosch, F. A. (2009). Mediating and moderating processes in the relation between maltreatment and psychopathology: mother-child relationship quality and emotion regulation. *Journal of Abnormal Child Psychology, 37*(6), 831-843. doi: 10.1007/s10802-009-9314-4

American Psychiatric Association (2013). Diagnostic and statistical manual of mental disorders; DSM V, 5th ed. Washington DC: American Psychiatric Association.

Anderson, K. M., & Bang, E.-J. (2012). Assessing PTSD and resilience for females who during childhood were exposed to domestic violence. *Child & Family Social Work, 17*(1), 55-65. doi: 10.1111/j.1365-2206.2011.00772.x

Arbona, C., & Power, T. G. (2003). Parental attachment, self-esteem, and antisocial behaviors among African American, European American, and Mexican American adolescents. *Journal of Counseling Psychology, 50*(1), 40-51. doi: 10.1037/0022-0167.50.1.40

Arrington, E. G., & Wilson, M. N. (2000). A re-examination of risk and resilience during adolescence: Incorporating culture and diversity. *Journal of Child and Family Studies, 9*, 221-230.

Asgeirsdottir B.B., Gudjonsson G.H., Sigurdsson J.F., Sigfusdottir I.D. (2010). Protective processes for depressed mood and anger among sexually abused adolescents: The importance of self-esteem. *Personality and Individual Differences, 49*, 402-407.

Bardone, A. M., Moffitt, T. E., Caspi, A., Dickson, N., Stanton, W. R., & Silva, P. A. (1998). Adult physical health outcomes of adolescent girls with conduct disorder, depression, and anxiety. *Journal of the American Academy of Child & Adolescent Psychiatry, 37*(6), 594-601. doi: 10.1097/00004583-199806000-00009

Bearman, P., Jones, J., & Udry, R. (1997). *The National Longitudinal Study on Adolescent Health: Research Design.* Chapel Hill, NC: Carolina Population Center.

Becker, B. E., & Luthar, S. S. (2002). Social-emotional factors affecting achievement outcomes among disadvantaged students: closing the achievement gap. *Educational Psychologist, 37*(4), 197-214.

Beitchman, J. H., Zucker, K. J., Hood, J. E., DaCosta, G. A., Akman, D., & Cassavia, E. (1992). A review of the long-term effects of child sexual abuse. *Child Abuse & Neglect, 16*(1), 101-118. doi:10.1016/0145-2134(92)90011-F

Belsky, J. (1980). Child maltreatment: An ecological integration. *American Psychologist, 35* (4), 320-335. Doi: 10.1037/0003-066X.35.4.320

Belsky, J. (1993). Etiology of child maltreatment: a developmental-ecological analysis. *Psychological Bulletin, 114*(3), 413-434. doi: 0033-2909/93/S3.00

Boden, J. M., Horwood, L. J., & Fergusson, D. M. (2007). Exposure to childhood sexual and physical abuse and subsequent educational achievement outcomes. *Child Abuse and Neglect, 31*(10), 1101-1114. doi: 10.1016/j.chiabu.2007.03.022

Bolger, K. E., & Patterson, C. J. (2001). Developmental pathways from child maltreatment to peer rejection. *Child Development, 72,* 549–568. doi: 10.1111/1467-8624.00296

Bolger, K.E., Patterson, C.J., & Kupersmidt, J.B. (1998). Peer relationships and self-esteem among children who have been maltreated. *Journal of Child Development, 69,* 1171-1197. doi: 10.1111/j.1467-8624.1998.tb06166.x

Bonanno, G. A. (2012). Uses and abuses of the resilience construct: loss, trauma, and health-related adversities. *Social Science & Medicine, 74*(5), 753-756. doi: 10.1016/j.socscimed.2011.11.022

Bonanno, G. A., Brewin, C. R., Kaniasty, K., & La Greca, A. M. (2010). Weighing the costs of disaster: Consequences, risks, and resilience in individuals, families, and communities. *Psychological Science In The Public Interest, 11*(1), 1-49. doi:10.1177/1529100610387086

Bowen, N. K., Bowen, G. L., & Ware, W. B. (2002). Neighborhood social disorganization, families, and the educational behavior of adolescents. *Journal of Adolescent Research*, 17, 468-490. doi: 10.1177/0743558402175003

Briere, J. (1996) *Trauma Symptom Checklist for Children (TSCC).* Odessa, FL: Psychological Assessment Resources.

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32,* 513-530. doi: 10.1037/0003-066X.32.7.513

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, 22(6), 723-742. doi: 10.1037/0012-1649.22.6.723

Brooks, J.E. (2006). Strengthening resilience in children and youths: Maximizing opportunities through the schools. *Children and Schools,* 28, 69-76. doi: 10.1093/cs/28.2.69

Brown, J., Cohen, P., Johnson, J. G. & Smailes, E. (1999). Childhood abuse and neglect: specificity of effects on adolescent and young adult depression and suicidality. *Journal of the American Academy of Child & Adolescent Psychiatry*, *38*(12), 1490-1496. doi: 10.1097/00004583-199912000-00009

Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research, 21*(2), 230-258. doi: 10.1177/0049124192021002005

Bryan, J. (2005). Fostering educational resilience and achievement in urban schools through school-family-community partnerships. *Professional School Counseling, 8,* 219-227.

Burgess, R. L., & Conger, R. (1978). Family interactions in abusive, neglectful, and normal families. *Child Development, 49,* 1163–1173. doi: 10.2307/1128756

Byrne, B. M. (1998). *Structural equation modeling with LISREL, PRELIS, and SIMPLIS : basic concepts, applications, and programming.* Mahwah, NJ: Lawrence Erlbaum Associates Inc.

Carbonell, D. M., Reinherz, & Giaconia, R. M. (1998). Risk and resilience in late adolescence. *Child and Adolescent Social Work Journal*, 15, 2. doi: 10.1023/A:1025107827111

Chapman, G. & Campbell, R. (2012). *The 5 Love Languages of Children.* Chicago, IL: Northfield Publishing.

Christiansen, E. J., & Evans, W. P. (2005). Adolescent Victimization: Testing Models of Resiliency by Gender. *The Journal of Early Adolescence, 25*(3), 298-316. doi: 10.1177/0272431605276931

Catalano, R., Berglund, L., Ryan, J., Lonczak, H. & Hawkins, J.D. (2004). Positive Youth Development in the United States: Research Findings on Evaluations of Positive Youth Development Programs. *The ANNALS of the American Academy of Political and Social Science, 591,* 98-124. doi: 10.1177/0002716203260102.

Cauffman, E., Feldman, S. S., Waterman, J., & Steiner, H. (1998). Posttraumatic stress disorder among female juvenile offenders. *Journal of the American Academy of Child and Adolescent Psychiatry, 37* (11), 1209-1216. doi: 10.1097/00004583-199811000-00022

Cicchetti, D. (2004). An odyssey of discovery: Lessons learned through three decades of research on child maltreatment. *American Psychologist, 59,* 731-741. doi: 10.1037/0003-066X.59.8.731

Cicchetti, D. (2013). Annual Research Review: Resilient functioning in maltreated children--past, present, and future perspectives. *Journal of Child Psychology and Psychiatry, 54*(4), 402-422. doi: 10.1111/j.1469-7610.2012.02608.x

Cicchetti, D., & Curtis, W. J. (2006). The developing brain and neural plasticity: Implications for normality, psychopathology, and resilience. In D. Cicchetti & D. J. Cohen (Eds.), Developmental psychopathology: Vol. 2. Developmental neuroscience (2nd ed., pp. 1–64). Hoboken, NJ: Wiley.

Cicchetti & Garmezy, (1993). Prospects and promises in the study of resilience. *Development & Psychopathology*, 5, 497-502. doi: 10.1017/S0954579400006118

Cicchetti, D., & Howes, P. W. (1991). Developmental psychopathology in the context of family: Illustrations from the study of child maltreatment. *Canadian Journal of Behavioral Science, 23,* 257-281. doi: 10.1037/h0079020

Cicchetti, D. & Lynch, M. (1993). Toward an ecological/transactional model of community violence and child maltreatment: consequences for children's development. *Journal of Psychiatry, 56* (1), 96-118.

Cicchetti, D., & Rogosch, F. A. (1996). Equifinality and multifinality in developmental psychopathology. *Development and Psychopathology, 8*, 597-600. doi: 10.1017/S0954579400007318

Cicchetti, D., & Rogosch, R. A. (1997). The role of self-organization in the promotion of resilience in maltreated children. *Development and Psychopathology, 9*, 797-815. doi: 10.1017/S0954579497001442

Cicchetti, D. & Rogosch, F. A. (2002). A developmental psychopathology perspective on adolescence. *Journal of Consulting and Clinical Psychology, 70*, 6-20. doi: 10.1037/0022-006X.70.1.6

Cicchetti, D., & Rogosch, F. A. (2009). Adaptive coping under conditions of extreme stress: Multilevel influences on the determinants of resilience in maltreated children. *New Directions in Child and Adolescent Development, 2009*(124), 47-59. doi: 10.1002/cd.242

Cicchetti D, Rogosch FA, Lynch M, Holt K. (1993). Resilience in maltreated children: Processes leading to adaptive outcomes. *Development and Psychopathology, 5*, 629–647. doi: 10.1017/S0954579400006209

Cicchetti, D., & Toth, S. L. (1993). Child abuse research and social policy: The neglected nexus. In D. Cicchetti & S. L. Toth (Eds.), *Child abuse, child development, and social policy* (pp. 301-330). Norwood, NJ: Ablex.

Cicchetti, D., & Toth, S. L. (1995). A developmental psychopathology perspective on child abuse and neglect. *Journal of American Academy of Child and Adolescent Psychiatry, 34*(5), 541-565. doi: 0890-8567/95/3405-0541$03.0010

Clark, P. (1995). Risk and resiliency in adolescence: The current status of research on gender differences. *Equity Issues, 1*, 2-13.

Claussen, A. H., & Crittenden, P. M. (1991). Physical and psychological maltreatment: Relations among types of maltreatment. *Child Abuse & Neglect, 15*(1-2), 5-18. doi:10.1016/0145-2134(91)90085-R

Colarossi, L. G. & Eccles, J.S. (2000). A prospective study of adolescents' peer support: Gender differences and the influence of parental relationships. *Journal of Youth and Adolescence 29*(6), 661-678. doi:10.1023/A:1026403922442

Collin-Vezina, C., Milne, Sell, & Daigneault (2011). Trauma experiences, maltreatment-related impairments, and resilience among child welfare youth in residential care. International *Journal of Mental Health and Addiction, 9,* 577-589. doi: 10.1007/s11469-011-9323-8

Compas, B. E., Hinden, B. R., & Gerhardt, C. A. (1995). Adolescent development: Pathways and processes of risk and resilience. *Annual Review of Psychology, 46,* 265-293. doi: 10.1146/annurev.ps.46.020195.001405

Cowen, E. L., Wyman, P. A., Work, W. C., & Iker, M. R. (1995). A preventive intervention for enhancing resilience among highly stressed urban children. *The Journal Of Primary Prevention, 15*(3), 247-260. doi:10.1007/BF02197474

Coohey, C., Renner, L. M., Hua, L., Zhang, Y. J., & Whitney, S. D. (2011). Academic achievement despite child maltreatment: A longitudinal study. *Child Abuse and Neglect, 35*, 688-699. doi: 10.1016/j.chiabu.2011.05.009

Crockett, L. & Crouter, A. (1995). Pathways through adolescence: An overview. In L.J. Crockett & A.C. Crouter (Eds.), Pathways through adolescence: Individual development in relation to social contexts (pp. 1-12). Mahwah, NJ: Lawrence Erlbaum Associates.

Crosnoe, R., & Elder, G. J. (2004). Family Dynamics, Supportive Relationships, and Educational Resilience During Adolescence. *Journal Of Family Issues, 25*(5), 571-602. doi: 10.1177/0192513X03258307

Crozier, J. C., & Barth, R. P. (2005). Cognitive and academic functioning in maltreated children. *Children & Schools, 27*(4), 197-206. doi: 10.1093/cs/27.4.197

Csikszentmihalyi, M., Rathunde, K., & Whalen, S. (1993). *Talented Teenagers: The roots of Success and Failure*. New York: Cambridge University Press.

Cuffe, S. P., McCullough, E. L., & Pumariega, A. J. (1994). Comorbidity of attention deficit hyperactivity disorder and post-traumatic stress disorder. *Journal of Child and Family Studies, 3*(3), 327-336. doi: 10.1007/BF02234689

Cullerton-Sen, C., Cassidy, A. R., Murray-Close, D., Cicchetti, D., Crick, N. R., & Rogosch, F. A. (2008). Childhood maltreatment and the development of relational and physical aggression: the importance of a gender-informed approach. *Child Development, 79*(6), 1736-1751. doi: 10.1111/j.1467-8624.2008.01222.x

Cunningham, M., Hurley, M., Foney, D., & Hayes, D. (2002). The influence of perceived contextual stress on self-esteem and academic outcomes in African American

adolescents. *Journal of Black Psychology, 28,* 215-233. doi: 10.1177/0095798402028003003

Dehon, C., & Weems, C. F. (2009). Emotional Development in the Context of Conflict: The Indirect Effects of Interparental Violence on Children. *Journal of Child and Family Studies, 19*(3), 287-297. doi: 10.1007/s10826-009-9296-4

Demo, D. H. & Acock, A. C. (1996). Family structure, family process, and adolescent well-being. *Journal of Research on Adolescence*, 6, 457-488.

Desai, S., Arias, I., Thomson, M. P., & Basile, K. C. (2002). Childhood victimization and subsequent adult revictimization assessed in a nationally representative sample of women and men. *Violence and Victims, 17,* 639–653. doi: 10.1891/vivi.17.6.639.33725

Diamantopoulos, A. & Siguaw, J. A. (2000). *Introducing Lisrel: A guide for the uninitiated.* London: SAGE Publications.

Dodge, K. A., Bates, J. E., & Pettit, G. S. (1990). Mechanisms in the cycle of violence. *Science, 250,* 1678-1683. doi: 10.1126/science.2270481

Dodge, K. A., & Pettit, G. S. (2003). A biopsychosocial model of the development of chronic conduct problems in adolescence. *Developmental Psychology, 39*(2), 349-371. doi:10.1037/0012-1649.39.2.349

Doll, B., & Lyon, M. A. (1998). Risk and Resilience: Implications For The Delivery Of Educational And Mental Health Services In Schools. *School Psychology Review, 27*(3), 348-364.

Dong, Y., & Peng, C.-Y. J. (2013). Principled missing data methods for researchers. SpringerPlus, 2, 222. http://doi.org/10.1186/2193-1801-2-222

DuBois, D. L. and Hirsch, B. J. (1990), School and Neighborhood Friendship Patterns of Blacks and Whites in Early Adolescence. *Child Development, 61*: 524–536. doi:10.1111/j.1467-8624.1990.tb02797.x

Dubowitz, H., Newton, R. R., Litrownik, A. J., Lewis, T., Briggs, E. C., Thompson, R., English, D., Lee, L., & Feerick, M. M. (2005). Examination of a conceptual model of child neglect. *Child Maltreatment, 10,* 173-189. doi: 10.1177/1077559505275014

DuMont, K. A., Widom, C. S., & Czaja, S. J. (2007). Predictors of resilience in abused and neglected children grown-up: The role of individual and neighborhood characteristics. *Child Abuse & Neglect, 31*(3), 255-274. doi:10.1016/j.chiabu.2005.11.015

Earvolino-Ramirez, M. (2007). Resilience: A Concept Analysis. *Nursing Forum, 42*(2), 73-82. doi:10.1111/j.1744-6198.2007.00070.x

Eckenrode, J., Laird, M., & Doris, J. (1993). School performance and disciplinary problems among abused and neglected children. *Developmental Psychology, 29*(1), 53-62. doi: 10.1037/0012-1649.29.1.53

Edmond, T., Auslander, W., Elze, D., & Bowland, S. (2006). Signs of resilience in sexually abused adolescent girls in the foster care system. *Journal of Child Sexual Abuse, 15*(1), 1-28. doi: 10.1300/J070v15n01_01

Egeland, B., Carlson, E., & Soufre, L. A. (1993). Resilience as process. *Development and Psychopathology*, 5, 517-528. doi: 10.1017/S0954579400006131

Ehrensaft, M. K. (2005). Interpersonal Relationships and Sex Differences in the Development of Conduct Problems. *Clinical Child and Family Psychology Review, 8,* 39-63. doi:10.1007/s10567-005-2341-y.

Erikson, E. (1958). Identity and the life cycle. *Psychological Issues, 1,* 1-173.

Erikson, E. (1968). *Identity, Youth and Crisis.* New York: Norton.

Ethier, L. S., Lemelin, J., & Lacharite, C. (2004). A longitudinal study of the effects of chronic maltreatment on children's behavioral and emotional problems. *Child Abuse & Neglect, 28,* 1265–1278. doi: 10.1016/j.chiabu.2004.07.006

Famularo, R., Fenton, T., Kinscherff, R., Augustyn, M. (1996). Psychiatric comorbidity in childhood posttraumatic stressdisorder. *Victimization and Neglect, 20,* 953-961. doi:10.1016/0145-2134(96)00084-1

Fang, X., Brown, D. S., Florence, C. S., & Mercy, M. A. (2012). The economic burden of child maltreatment in the United States and implications for prevention. *Child Abuse & Neglect,* doi:10.1016/j.chiabu.2011.10.006.

Fergusson, D. M., & Lynskey, M. T. (1996). Adolescent resiliency to family adversity. *Child Psychology & Psychiatry & Allied Disciplines, 37*(3), 281-292. doi:10.1111/j.1469-7610.1996.tb01405.x

Flisher, A.Kramer, R.Hoven, C.Greenwald, S.Alegria, M.Bird, H.Canino, G.Connell, R.Moore, R. (1997). Psychosocial characteristics of physically abused children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 36,* 123-131. doi: 10.1097/00004583-199701000-00026

Flynn, R. J., Ghazal, H., Legault, L., Vandermeulen, G., & Petrick, S. (2004). Use of population measures and norms to identify resilient outcomes in young people in

care. *Child and Family Social Work, 9*, 65-79. doi: 10.1111/j.1365-2206.2004.00322.x

Folger, S. F., & Wright, M. O. D. (2013). Altering Risk Following Child Maltreatment: Family and Friend Support as Protective Factors. *Journal of Family Violence, 28*(4), 325-337. doi: 10.1007/s10896-013-9510-4

Ford, J., Elhai, J., Connor, D., & Frueh, B. (2010). Poly-victimization and risk of posttraumatic, depressive, and substance use disorders and involvement in delinquency in a national sample of adolescents. *Journal of Adolescent Health, 46* (6), 545-552. doi: 10.1016/j.jadohealth.2009.11.212.

Galambos, N. J., & Leadbeater, B. J. (2000). Trends in adolescent research for the new millennium. *International Journal of Behavioral Development, 24*, 289-294.

Gallagher, M. W. & Brown, T. A. (2013). Introduction to confirmatory factor analysis and structural equation modeling. In Teo, T. (Ed.) *Handbook of quantitative methods for educational research.* Rotterdam, The Netherlands: Sense Publishers.

Garmezy N. (1974). The study of competence in children at risk for severe psychopathology. In: Anthony EJ, Koupernik C, editors. The child in his family: Children at Psychiatric risk: III. Wiley; New York, p. 547.

Garmezy N. (1991) Resilience in children's adaptation to negative life events and stressed environments. *Pediatric Annals, 20* (9), 459-466. doi: 10.3928/0090-4481-19910901-05

Garmezy, N. (1991). Resiliency and Vulnerability to Adverse Developmental Outcomes Associated with Poverty. *American Behavioral Scientist, 34*(4), 416-430. doi: 10.1177/0002764291034004003

Garmezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. *Child Development*, 55, 97-111. doi: 10.2307/1129837

Gavin, H. & Porter, T. (2015). *Female Aggression.* Chichester, England: Wiley Blackwell.

Gerwirtz, A. H., & Edleson, J. L. (2007). Young children's exposure to intimate partner violence: towards a developmental risk and resilience framework for research and intervention. *Journal of Family Violence, 22*, 151-163. doi: 0.1007/s10896-007-9065-3

Gilligan, C. (1982). *In a different voice: Psychological theory and women's development*. Cambridge, MA: Harvard University Press.

Gjerde, P. F. (1995). Alternative pathways to chronic depressive symptoms in young adults: Gender differences in developmental trajectories. *Child Development*, 66, 1277-1300. doi: 10.2307/1131647

Glandon, A. (2007). Resilience is not the absence of PTSD any more than health is the absence of disease. *Journal of Loss and Trauma, 12,* 127-143. doi: 10.1080/15325020600945962

Gordon, E. W., & Song, L. D. (1994). Variations in the experience of resilience. In M. C. Wang, E. W. Gordon, (Eds.), Educational resilience in inner-city America: Challenges and prospects (pp. 27-43). Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.

Gore-Felton, C., Koopman, C., McGarvey, E., Hernandez, N., & Canterbury, R. J. Jr. (2001). Relationships of sexual, physical, and emotional abuse to emotional and

behavioral problems among incarcerated adolescents. *Journal of Child Sexual Abuse (10)*1, 73-88.

Graham-Bermann, S. A., Gruber, G., Howell, K. H., & Girz, L. (2009). Factors discriminating among profiles of resilience and psychopathology in children exposed to intimate partner violence (IPV). *Child Abuse and Neglect, 33*(9), 648-660. doi: 10.1016/j.chiabu.2009.01.002

Gravener, J. A., Rogosch, F. A., Oshri, A., Narayan, A. J., Cicchetti, D., & Toth, S. L. (2012). The relations among maternal depressive disorder, maternal expressed emotion, and toddler behavior problems and attachment. *Journal of Abnormal Child Psychology, 40*(5), 803-813. doi: 10.1007/s10802-011-9598-z

Grewal, R., Cote, J.A., & Baumgartner, H. (2004). Multicollinearity and measurement error in structural equation models: Implications for theory testing. *Marketing Science, 23*(4), 519-529. doi: 10.1287/mksc.1040.0070

Grogan-Kaylor, A., Ruffolo, M. C., Ortega, R. M., & Clarke, J. (2008). Behaviors of youth involved in the child welfare system. *Child Abuse and Neglect, 32*(1), 35-49. doi: 10.1016/j.chiabu.2007.09.004

Grossman, F. K., Beinashowitz, J., Anderson, L., Sakurai, M., Finnin, L., & Flaherty, M. (1992). Risk and resilience in young adolescents. *Journal of Youth and Adolescence*, 21, 529-550. doi: 10.1007/BF01537394

Gutman, L.M., Sameroff, A.J., & Cole, R. (2003). Academic growth curve trajectories from 1st grade to 12th grade: effects of multiple social risk factors and preschool child factors. *Developmental Psychology, 39* (4), 777-790. doi: 10.1037/0012-1649.39.4.777

Guttmannova K, Szanyi JM, Cali PW. (20080. Internalizing and externalizing behavior problem scores: Cross-ethnic and longitudinal measurement invariance of the Behavior Problem Index. *Educational and Psychological Measurement, 68*, 676–694. doi:10.1177/0013164407310127.

Hammack PL, Richards MH, Luo Z, Edlynn ES, & Roy K. (2004). Social support factors as moderators of community violence exposure among inner-city African American young adolescents. *Journal of Clinical Child and Adolescent Psychology, 33*(3):450–462. doi: 10.1207/s15374424jccp3303_3

Hampel, P., & Petermann, F. (2005). Age and Gender Effects on Coping in Children and Adolescents. *Journal of Youth and Adolescence, 34*(2), 73-83. doi: 10.1007/s10964-005-3207-9.

Hancock, G. R., & Mueller, R. O. (2010). *Structural equation modeling: A second course.* Greenwich, CT: Information Age Publishing.

Hartman, J. L., Turner, M. G., Daigle, L. E., Exum, M. L., & Cullen, F. T. (2009). Exploring the gender differences in protective factors: implications for understanding resiliency. *International Journal of Offender Therapy and Comparative Criminology, 53*(3), 249-277. doi: 10.1177/0306624X08326910

Haskett, M. E., Allaire, J. C., Kreig, S., & Hart, K. C. (2008). Protective and vulnerability factors for physically abused children: effects of ethnicity and parenting context. *Child Abuse and Neglect, 32*(5), 567-576. doi: 10.1016/j.chiabu.2007.06.009

Haskett, M. E., Nears, K., Ward, C. S., & McPherson, A. V. (2006). Diversity in adjustment of maltreated children: factors associated with resilient functioning. *Clinical Psychology Review, 26*(6), 796-812. doi: 10.1016/j.cpr.2006.03.005

Hattie, J. A., Myers, J. E., & Sweeney, T. J. (2004). A Factor Structure of Wellness: Theory, Assessment, Analysis, and Practice. *Journal of Counseling & Development, 82*(3), 354-364. doi: 10.1002/j.1556-6678.2004.tb00321.x

Hauser, S. T. (1999). Understanding resilient outcomes: Adolescent lives across time and generations. *Journal of Research on Adolescence, 9*, 1-24. doi: 10.1207/s15327795jra0901_1

Hayduk, L. A. (1996). *LISREL issues, debates, and strategies.* Baltimore, MD: The John Hopkins University Press.

Haynie, D. L. (2003). Contexts of risk? Explaining the link between girls' pubertal development and their delinquency involvement. *Social Forces, 82*(1), 355-397.

Hazen, Connelly, Kelleher, Landsverk, and Barth (2004). Intimate partner violence among female caregivers of children reported for child maltreatment. *Child Abuse and Neglect , 28*(3), 301–319. doi: 10.1016/j.chiabu.2003.09.016

Heller, S. S., Larrieu, J. A., D'Imperio, R., & Boris, N. W. (1999). Research on resilience to child maltreatment: empirical considerations. *Child Abuse and Neglect, 23*(4), 321-338. doi: 0145-2134199

Henning, K., Leitenberg, H., Coffey, P., Turner, T., & Bennett, R. T. (1996). Long-term psychological and social impact of witnessing physical conflict between parents. *Journal Of Interpersonal Violence, 11*(1), 35-51. doi:10.1177/088626096011001003

Herrenkohl, K. (2012). A review of developmental research on resilience in maltreated children. *Trauma Violence Abuse, 14*, 222-234.

Howard, S., Dryden, J., & Johnson, B. (1999). Childhood Resilience: review and critique of literature. *Oxford Review Of Education, 25*(3), 307-323. doi:10.1080/030549899104008

Howell, K. H. (2011). Resilience and psychopathology in children exposed to family violence. *Aggression and Violent Behavior, 16*(6), 562-569. doi: 10.1016/j.avb.2011.09.001

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6,* 1–55. doi: 10.1080/10705519909540118

Ialongo, N., Edelsohn, G., Werthamer-Larsson, L., Crockett, L., & Kellam, S. (1995). The significance of self-reported anxious symptoms in first grade children: Prediction to anxious symptoms and adaptive functioning in fifth grade. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 36*(3), 427-437. doi: 10.1111/j.1469-7610.1995.tb01300.x

Iwaniec, D., Larkin, E., & Higgins, S. (2006). Research Review: Risk and resilience in cases of emotional abuse. *Child & Family Social Work, 11*(1), 73-82. doi:10.1111/j.1365-2206.2006.00398.x

Jaffee, S. R., Caspi, A., Moffitt, T. E., Polo-Tomas, M., & Taylor, A. (2007). Individual, family, and neighborhood factors distinguish resilient from non-resilient maltreated children: a cumulative stressors model. *Child Abuse and Neglect, 31*(3), 231-253. doi: 10.1016/j.chiabu.2006.03.011

Jaffee, S. R., & Gallop, R. (2007). Social, emotional, and academic competence among children who have had contact with child protective services: prevalence and

stability estimates. *Journal of the American Academy of Child and Adolescent Psychiatry, 46*(6), 757-765. doi: 10.1097/chi.0b013e318040b247

Jain, S., Buka, S. L., Subramanian, S. V., & Molnar, B. E. (2012). Protective factors for youth exposed to violence: Role of developmental assets in building emotional resilience. *Youth Violence And Juvenile Justice, 10*(1), 107-129. doi:10.1177/1541204011424735

Jenkins, S. R., Goodness, K., & Buhrmester, D. (2002). Gender Differences in Early Adolescents' Relationship Qualities, Self-Efficacy, and Depression Symptoms. The *Journal of Early Adolescence, 22*(3), 277-309. doi: 10.1177/02731602022003003

Jenson, J. M., & Fraser, M. W. (2011). *Social policy for children and families: A risk and resilience perspective*. (2nd ed.) Thousand Oaks, CA: Sage.

Johnson, J. L., & Wiechelt, S. A. (2004). Introduction to the Special Issue on Resilience. *Substance Use & Misuse, 39*(5), 657-670. doi:10.1081/JA-120034010

Jonson-Reid, M, & Barth, R. P. (2000). From placement to prison: The path to adolescent incarceration from child welfare supervised foster or group care. *Children and Youth Services Review, 22*, 493–516. doi: 10.1016/S0190-7409(00)00100-6

Kaplan, S. J., Pelcovitz, D., & Labruna, V. (1999). Child and adolescent abuse and neglect research: A review of the past 10 years. Part I: Physical and emotional abuse and neglect. *Journal Of The American Academy Of Child & Adolescent Psychiatry, 38*(10), 1214-1222. doi:10.1097/00004583-199910000-00009

Kaufman, J., Cook, A., Arny, L., Jones, B., & Pittinsky, T. (1994). Problems defining resiliency: Illustrations from the study of maltreated children. *Development and Psychopathology*, 6, 215-229. doi: 10.1017/S0954579400005964

Keil, V., & Price, J. M. (2006). Externalizing behavior disorders in child welfare settings: Definition, prevalence, and implications for assessment and treatment. *Children and Youth Services Review, 28*(7), 761-779. doi:10.1016/j.childyouth.2005.08.006

Keiley, M. K., Howe, T. R., Dodge, K. A., Bates, J. E., & Pettit, G. S. (2001). The timing of child physical maltreatment: a cross-domain growth analysis of impact on adolescent externalizing and internalizing problems. *Developmental Psychopathology, 13*, 891-912.

Kelloway, E. K. (1998). *Using LISREL for structural equation modeling : a researcher's guide.* Thousand Oaks, CA: SAGE Publications, Inc.

Keough, K. A., Zimbardo, P. G., & Boyd, J. N. (1999). Who's smoking, drinking, and using drugs? time perspective as a predictor of substance use. *Basic and Applied Social Psychology, 21*(2), 149-164. doi: 10.1207/S15324834BA210207

Kim, J., & Cicchetti, D. (2003). Social self-efficacy and behavior problems in maltreated and nonmaltreated children. *Journal of Clinical Child and Adolescent Psychology, 32*(1), 106-117. doi: 10.1207/S15374424JCCP3201_10

Kim, J. & Cicchetti, D. (2004). A longitudinal study of child maltreatment, mother-child relationship quality and maladjustment: The role of self-esteem and social competence. *Journal of Abnormal Child Psychology, 32*, 341-354. doi:10.1023/B:JACP.0000030289.17006.5a

Kim, J. & Cicchetti, D. (2006). Longitudinal trajectories of self-system processes and depressive symptoms among maltreated and nonmaltreated children. *Child Development, 77*, 624-639. doi: 10.1111/j.1467-8624.2006.00894.x

Kim, J., & Cicchetti, D. (2010). Longitudinal pathways linking child maltreatment, emotion regulation, peer relations, and psychopathology. *Journal of Child Psychology and Psychiatry, 51*(6), 706-716. doi: 10.1111/j.1469-7610.2009.02202.x

Kim-Spoon, J., Cicchetti, D., & Rogosch, F. A. (2013). A longitudinal study of emotion regulation, emotion lability-negativity, and internalizing symptomatology in maltreated and nonmaltreated children. *Child Development, 84*(2), 512-527. doi: 10.1111/j.1467-8624.2012.01857.x

Kim-Spoon, J., Haskett, M. E., Longo, G. S., & Nice, R. (2012). Longitudinal study of self-regulation, positive parenting, and adjustment problems among physically abused children. *Child Abuse and Neglect, 36*(2), 95-107. doi: 10.1016/j.chiabu.2011.09.016

Kinard, E. M. (1998). Methodological issues in assessing resilience in maltreated children. *Child Abuse and Neglect, 22*(7), 669-680. doi: 0145-2134/98

Kitzmann, K. M., Gaylord, N. K., Holt, A. R., & Kenny, E. D. (2003). Child witnesses to domestic violence: A meta-analytic review. Journal of Consulting and Clinical Psychology, 71, 339–352. doi: 10.1037/0022-006X.71.2.339

Kline, R. B. (1998). *Principles and practice of structural equation modeling.* New York, NY: The Guilford Press.

Kolbo, J. R. (1996). Risk and resilience among children exposed to family violence. *Violence and Victims, 11*(2), 113-128.

Kortenkamp, K. & Ehrle, J. (2002). The well-being of children Involved with the child welfare system: A national overview. New Federalism: National Survey of America's Families, Series B, No. B-43. Assessing the New Federalism: An Urban Institute Program To Assess Changing Social Policies. Washington, DC: Urban Institute.

Kubik, M.Y., Lytle, L.A., Birnbaum, A.S., Murray, D.M., & Perry, C.L. (2003). Prevalence and Correlates of Depressive Symptoms in Young Adolescents. *American Journal of Health Behavior,* 27, 546-553. doi: 10.5993/AJHB.27.5.6

Kurtz, P. D., James M. Gauldin, J., Wodarski, J. S., & Howing, P. T. (1993). Maltreatment and the school-aged child: school performance consequences. *Child Abuse and Neglect, 17,* 581-589. doi: 0145.2134/93

Kortenkamp, K., Ehrle, J., & Urban Inst., W. D. (2002). The Well-Being of Children Involved with the Child Welfare System: A National Overview. New Federalism: National Survey of America's Families, Series B, No. B-43. Assessing the New Federalism: An Urban Institute Program To Assess Changing Social Policies.

Lansford, J. E., Malone, P. S., Stevens, K. I., Dodge, K. A., Bates, J. E., & Pettit, G. S. (2006). Developmental trajectories of externalizing and internalizing behaviors: Factors underlying resilience in physically abused children. *Developmental Psychopathology, 18,* 35-55. doi: 10.10170S0954579406060032

Lau, R. S. & Cheung, G. W. (2012). Estimating and comparing specific mediation effects in complex latent variable models. Organizational Research Methods, 15(1), 3-16. doi: 10.1177/1094428110391673

Lerner, R. M., & Galambos, N. L. (1998). Adolescent development: Challenges and opportunities for research, programs, and policies. *Annual Review Of Psychology, 49*(1), 413-446. doi: 10.1146/annurev.psych.49.1.413

Lerner R., & Steinberg, L. (2009). The scientific study of adolescent development: Past, present, and future. In R. M. Lerner, L. Steinberg (Eds.), *Handbook of adolescent psychology* (3rd ed.) (pp. 3-14). Hoboken, NJ: John Wiley & Sons.

Leslie, L. K., James, S., Monn, A., Kauten, M. C., Zhang, J., & Aarons, G. (2010). Health-risk behaviors in young adolescents in the child welfare system. *Journal of Adolescent Health, 47*(1), 26-34. doi: 10.1016/j.jadohealth.2009.12.032

Levendosky, A. A., Huth-Bocks, A. C., Shapiro, D. L., & Semel, M. A. (2003). The impact of domestic violence on the maternal-child relationship and preschool-age children's functioning. *Journal of Family Psychology, 17*(3), 275-287. doi: 10.1037/0893-3200.17.3.275

Levendosky, A. A., Leahy, K. L., Bogat, G. A., Davidson, W. S., & von Eye, A. (2006). Domestic violence, maternal parenting, maternal mental health, and infant externalizing behavior. *Journal of Family Psychology, 20*(4), 544-552. doi: 10.1037/0893-3200.20.4.544

Lewinsohn, P.M. & Essau, C.A. (2002). Depression in adolescents. In I. Gotlib & C. Hammen (eds.), Handbook of depression. New York: Guilford Press.

Lewinsohn, P., Hops, H., Roberts, R., Seeley, J., & Andrews, J. (1993). Adolescent psychopathology: I. Prevalence and incidence of depression and other DSM-III-R disorders in high school students. *Journal of Abnormal Psychology, 102* (1), 133-144. doi: 10.1037/0021-843X.102.1.133

Lewinsohn, P. M., Rohde, P., & Seeley, J. R. (1998). Major depressive disorder in older adolescents: prevalence, risk factors, and clinical implications. *Clinical Psychology Review, 18* (7), 765-794. doi: 10.1016/S0272-7358(98)00010-5

Licitra-Kleckler, D. M., & Waas, G. A. (1993). Perceived Social Support among High-Stress Adolescents: The Role of Peers and Family. *Journal of Adolescent Research, 8*(4), 381-402. doi: 10.1177/074355489384003

Little, R.J.A. (1988) A test missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association, 83,* 1198-1202.

Little, T. D., Card, N. A., Bovaird, J. A., Preacher, K. J., & Crandall, C. S. (2007). Structural equation modeling of mediation and moderation with contextual factors. In T. D. Little, J. A. Bovaird & N. A. Card (Eds.), *Modeling Contextual Effects in Longitudinal Studies* (pp. 207–230). Mahwah, NJ: Lawrence Erlbaum Associates.

Logan-Greene, P., Nurius, P. S., Herting, J.R., Hooven, C.L., Walsh E., & Thompson, E.A. (2011). Multi-domain risk and protective factor predictors of violent behavior among at-risk adolescents. *Journal of Youth Studies, 14*(4), 413–429. doi: 10.1080/13676261.2010.538044

Luthar, S. S. (1991). Vulnerability and resilience: A study of high-risk adolescents. *Child Development*, 62, 600-616. doi: 10.2307/1131134

Luthar, S.S. (1993). Methodological and conceptual issues in research on childhood resilience. *The Journal of Child Psychology and Psychiatry, 34* (4), 441-453. doi: 10.1111/j.1469-7610.1993.tb01030.x

Luthar, S. S. (1995). Social competence in the school setting: Prospective cross-domain associations among inner-city teens. *Child Development*, 66, 416-429. doi: 10.2307/1131587

Luthar, S.S. (Ed.) (2003). *Resilience and vulnerability: Adaptation in the context of childhood adversities*. New York: Cambridge University Press.

Luthar, S. S., & Barkin, S. H. (2012). Are affluent youth truly "at risk"? Vulnerability and resilience across three diverse samples. *Development and Psychopathology, 24*, 429-449. DOI: 10.1017/S0954579412000089

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71(3), 543-562. doi: 10.1111/1467-8624.00164

Luthar, S. S., Doernberger, C. H., & Ziggler, E. (1993). Resilience is not a unidimensional construct: Insights from a prospective study of inner-city adolescents. *Development and Psychopathology*, 5, 703-717. doi: 10.1017/S0954579400006246

Luthar, S.S., Sawyer, J.A., & Brown, P.J. (2006). Conceptual issues in studies of resilience: past, present, and future research. *Annals of the New York Academy of Sciences, 1094*, 105-115. doi: 10.1196/annals.1376.009

Luthar, S. S., & Zelano, L. B. (2003). Research on resilience: An integrative review. In S. S. Luthar (Ed.), Resilience and vulnerability: Adaptation in the context of childhood adversities (pp. 510–549). New York, NY: Cambridge University Press.

Luthar, S. S., & Zigler, E. (1991). Vulnerability and competence: A review of research on resilience in childhood. *American Journal of Orthopsychiatry, 61,* 6-22. doi: 10.1037/h0079218

Lynch, M., & Cicchetti, D. (1998). An ecological-transactional approach to children and contexts: The longitudinal interplay among child maltreatment, community violence, and children's symptomology. *Development and Psychopathology, 10,* 235-257. doi: 10.1017/S095457949800159X

Lynskey, M. T., & Fergusson, D. M. (1997). Factors protecting against the development of adjustment difficulties in young adults exposed to childhood sexual abuse. *Child Abuse & Neglect, 21* (12), 1177-1190. doi:10.1016/S0145-2134(97)00093-8

Manly, J. T., Kim, J. E., Rogosch, F. A., & Cicchetti, D. (2001). Dimensions of child maltreatment and children's adjustment: Contributions of developmental timing and subtype. *Development and Psychopathology, 13,* 789.

Marcoulides, G. A., & Schumacker, R. E. (1996). *Advanced structural equation modeling: issues and techniques.* Mahwah, NJ: Lawrence Erlbaum Associates Inc.

Martinez-Torteya, C., Anne Bogat, G., von Eye, A., & Levendosky, A. A. (2009). Resilience Among Children Exposed to Domestic Violence: The Role of Risk and

Protective Factors. *Child Development, 80*(2), 562-577. doi:10.1111/j.1467-8624.2009.01279.x

Maschi, T., Morgen, K., Bradley, C., & Hatcher, S. S. (2008). Exploring gender differences on internalizing and externalizing behaviors among maltreated youth: Implications for social work action. *Child and Adolescent Social Work Journal, 25*, 531-547. doi: 10.1007/s10560-008-0139-8

Masten, A. (1994). Resilience in individual development: Successful adaptation despite risk and adversity. In M. C. Wang & E.W. Gordon (Eds.), *Educational resilience in inner-city America: Challenges and prospects* (pp. 3-25). Hillsdale, NJ: Erlbaum.

Masten, A. S. (1999). Resilience comes of age: Reflections on the past and outlook for the next generation of research. In M. D. Glantz, J. Johnson, & L. Huffman (Eds.), *Resilience and development: Positive life adaptations* (pp. 289–296). New York, NY: Plenum.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, 56, 227-238. doi: 10.1037/0003-066X.56.3.227

Masten, A. S. (2006). Developmental psychopathology: Pathways to the future. *International Journal of Behavioral Development, 30*(1), 47-54. doi: 10.1177/0165025406059974

Masten, A. S. (2007). Resilience in developing systems: progress and promise as the fourth wave rises. *Developmental Psychopathology, 19*(3), 921-930. doi: 10.1017/S0954579407000442

Masten, A. S. (2011). Resilience in children threatened by extreme adversity: Frameworks for research, practice, and translational synergy. *Development and Psychopathology., 23*, 493–506. doi: 10.1017/S0954579411000198

Masten, A. S. (2012). Risk and resilience in development. In P. D. Zelazo (Ed.), *Oxford handbook of developmental psychology. New York, NY: Oxford University Press.*

Masten, A., Best, K., & Garmezy, N. (1990). Resilience and development: Contributions from the study of children who overcome adversity. *Developmental and Psychopathology, 2,* 425-444. doi: 10.1017/S0954579400005812

Masten, A. S., Burt, K. B., & Coatsworth, J. D. (2006). Competence and psychopathology in development. In D. Ciccheti & D. Cohen (Eds.), *Developmental psychopathology* (Risk, disorder and psychopathology 2nd ed., Vol. 3, pp. 696–738). New York, NY: Wiley.

Masten, A. & Cicchetti, D. (2010). Developmental cascades. *Development and Psychopathology, 22*, 491-495. doi:10.1017/S0954579410000222

Masten, A. S., Coatsworth, J. D., Neemann, J., Gest, S. D., Tellegen, A., & Garmezy, N. (1995). The structure and coherence of competence from childhood through adolescence. *Child Development, 66,* 1635-1659. doi: 10.2307/1131901

Masten, A., & Coatsworth, J. D. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American Psychologist, 53,* 205-220. doi: 10.1037/0003-066X.53.2.205

Masten, A., Cutuli, J., Herbers, J., & Reed, M. (2009). Resilience in development. In C.R. Snyder & S.J. Lopez (Eds.), *The handbook of positive psychology* (2nd ed., pp. 117-131). New York: Oxford University Press.

Masten A, & Garmezy N. (1985). Risk, vulnerability, and protective factors in developmental psychopathology. In: Lahey B, Kazdin A, editors. Advances in clinical child psychology. Vol. 8. Plenum Press; New York: pp. 1–52.

Masten, A. S., Herbers, J. E., Cutuli, J. J., & Lafavor, T. L. (2008). Promoting competence and resilience in the school context. *Professional School Counseling, 12,* 76-84. doi: 10.5330/PSC.n.2010-12.76

Masten, A. S., Hubbard, J. J., Gest, S. D., Tellegen, A., Garmezy, N., & Ramirez, M. (1999). Adaptation in the context of adversity: Pathways to resilience and maladaptation from childhood to late adolescence. *Development and Psychopathology, 11,* 143-169. doi: 10.1017/S0954579499001996

Masten, A. S., & Obradovic, J. (2006). Competence and resilience in development. *Annals for the New York Academy of Sciences, 1094*, 13-27. doi: 10.1196/annals.1376.003

Masten, A. S., Obradović, J., & Burt, K. (2006). Resilience in emerging adulthood: Developmental perspectives on continuity and transformation. In J. J. Arnett & J. L. Tanner (Eds.), *Emerging adults in America: Coming of age in the 21st Century* (pp. 173–190). Washington, DC: American Psychological Association.

Masten, A., Roisman, G., Long, J., Burt, K., Obradovic, J., Riley, J., Boelcke-Stennes, K., & Tellegen, A. (2005). Developmental cascades: linking academic achievement and externalizing and internalizing symptoms over 20 years. *Developmental Psychology, 1* (5), 733-746. doi: 10.1037/0012-1649.41.5.733

Masten, A., & Tellegen, A. (2012). Resilience in developmental psychopathology: contributions of the Project Competence Longitudinal Study. Developmental Psychology, 24 (2), 345-361. doi: 10.1017/S095457941200003X.

McKnight, L. R. & Loper A. B. (2002). The effect of risk and resilience factors on the prediction of delinquency in adolescent girls. *School Psychology International, 23,* 186-198. doi: 10.1177/0143034302023002744

Meadows, S. O., Brown, J. S., & Elder, G. H. (2006). Depressive Symptoms, Stress, and Support: Gendered Trajectories From Adolescence to Young Adulthood. *Journal of Youth and Adolescence, 35*(1), 89-99. doi: 10.1007/s10964-005-9021-6

Merry, S. & Andrews, L. (1994). Psychiatric status of sexually abused children 12 months afterdisclosure of abuse. *Journal of the American Academy of Child and Adolescent Psychiatry, 33*, 939-944. doi: 10.1097/00004583-199409000-00002

Morano. (2010). Resilience and coping with trauma: does gender make a difference? *Journal of Human Behavior in the Social Environment, 20*(4), 553-568. doi: 10.1080/10911350903275358

Mrazek, P. J., & Mrazek, D. A. (1987). Resilience in child maltreatment victims: A conceptual exploration. *Child Abuse and Neglect, 11*, 357-366. doi: 0145-2134/87

Moylan, C., Herrenkohl, T., Sousa, C., Tajima, E., Herrenkohl, R., & Russo, M. (2010). The Effects of Child Abuse and Exposure to Domestic Violence on Adolescent Internalizing and Externalizing Behavior Problems. *Journal of Family Violence, 25*(1), 53-63. doi:10.1007/s10896-009-9269-9

Mueller, R. O. (1996). *Basic principles of structural equation modeling: an introduction to LISREL and EQS.* New York, NY: Springer-Verlag New York, Inc.

Mueller, R. O., & Hancock, G. R. (2010). Structural Equation Modeling. In G. R. Hancock, & R. O. Mueller, (Eds.)., *Reviewer's guide to quantitative methods in the social sciences.* New York, NY: Routledge Publishing.

Myers, J. E., & Sweeney, T. J. (2004). The Indivisible Self: An Evidence-Based Model of Wellness. Journal of. *Individual Psychology, 60*(3), 234-245.

Myers, J. E., Sweeney, T. J., & Witmer, J. M. (2000). The Wheel of Wellness Counseling for Wellness: A Holistic Model for Treatment Planning. *Journal of Counseling & Development, 78*(3), 251.doi: 10.1002/j.1556-6676.2000.tb01906.x

Nasvytiene, D., Leonaviciene, T., & Lazdauskas, T. (2012). Child's resilience in face of maltreatment: a meta-analysis of empirical studies. *Psichologija, 46*, 7-26.

Neff, K. D., & McGehee, P. (2010). Self-compassion and Psychological Resilience Among Adolescents and Young Adults. *Self & Identity, 9*(3), 225-240. doi:10.1080/15298860902979307

Neighbors, D., Forehand, R. & McVicar, D. (1993). Resilient adolescents and interparental conflict. *American Journal of Orthopsychiatry, 63*, 462-471. doi: 10.1037/h0079442

Nolen-Hoeksema, S. (2001). Gender differences in depression. *Current Directions in Psychological Science, 10,* 173-176. doi: 10.1111/1467-8721.00142

Nolen-Hoeksema, S., Girgus, J. S. (1994). The emergence of gender differences in depression during adolescence. *Psychological Bulletin, 115*, 424-443. doi: 10.1037/0033-2909.115.3.424

Oberlander, S. E., Wang, Y., Thompson, R., Lewis, T., Proctor, L. J., Isbell, P., & Black, M. M. (2011). Childhood maltreatment, emotional distress, and early adolescent

sexual intercourse: multi-informant perspectives on parental monitoring. *Journal of Family Psychology, 25*(6), 885-894. doi: 10.1037/a0025423

Obradovic, J., Burt, K. B., & Masten, A. S. (2010). Testing a Dual Cascade Model Linking Competence and Symptoms over 20 Years from Childhood to Adulthood. *Journal Of Clinical Child And Adolescent Psychology, 39*(1), 90-102. doi: 10.1080/15374410903401120

O'Brien, M., Margolin, G., John, R. S., & Krueger, L. (1991). Mothers' and sons' cognitive and emotional reactions to simulated marital and family conflict. *Journal of Consulting and Clinical Psychology, 59*, 692–703. doi: 10.1037/0022-006X.59.5.692

O'Donnell, D., Schwab–Stone, M., & Muyeed, A. (2002). Multidimensional Resilience in Urban Children Exposed to Community Violence. *Child Development, 73*(4), 1265-1282. doi: 10.1111/1467-8624.00471

O'Dougherty, M., & Wright, F. S. (1990). Children born at medical risk: Factors affecting vulnerability and resilience. In J. Rolf, A. S. Masten, D. Cicchetti, K. H. Nuechterlein, & S. Weintraub (Eds.), *Risk and protective factors in the development of psychopathology* (pp. 120–140). New York, NY: Cambridge University Press.

Olsson, C. A., Bond, L., Burns, J. M., Vella-Brodrick, D. A., & Sawyer, S. M. (2003). Adolescent Resilience: A Concept Analysis. *Journal Of Adolescence, 26*(1), 1-11. doi: 10.1016/S0140-1971(02)00118-5

Ostrov, J. M., & Keating, C. F. (2004). Gender Differences in Preschool Aggression During Free Play and Structured Interactions: An Observational Study. *Social Development, 13*(2), 255-277. doi: 10.1111/j.1467-9507.2004.000266.x

Overstreet, S. & Mazza, J. (2003). An ecological-transactional understanding of community violence: Theoretical perspectives. *School Psychology Quarterly, 18* (1), 66-87. doi: 10.1521/scpq.18.1.66.20874

Park, M., Macdonald, T., Ozer, E., Burg, S., Millstein, S., & Brindis, C. (2001). Investing in clinical preventive services for adolescents. San Francisco: University of California-San Francisco, Policy Information and Analysis Center for Middle Childhood and Adolescence & National Adolescent Health Information Center.

Pelcovitz, D., Kaplan, S.J., Ellenberg, A., Labruna, V., Salzinger, A., Mandel, F., & Weiner, M. (2000). Adolescent Physical Abuse: Age at Time of Abuse and Adolescent Perception of Family Functioning. *Journal of Family Violence, 15* (4), 375-389. doi:10.1023/A:1007506313663

Pepin, E. N., & Banyard, V. L. (2006). Social Support: A Mediator between Child Maltreatment and Developmental Outcomes. *Journal of Youth and Adolescence, 35*(4), 612-625. doi: 10.1007/s10964-006-9063-4

Piaget, J. (1972). *The psychology of the child*. New York: Basic Books.

Pianta, R. C., & Walsh, D. J. (1998). Applying The Construct Of Resilience In Schools: Cautions From A Developmental Systems Perspective. *School Psychology Review, 27*(3), 407.

Pilowsky D., & Wu L. (2006) Psychiatric symptoms and substance use disorders in a nationally representative sample of American adolescents involved with foster

care. *Journal of Adolescent Health, 38*, 351–358. doi: 10.1016/j.jadohealth.2005.06.014

Pine, D. S., Cohen, P., Gurley, D., Brook, J. S., & Ma, Y. (1998). The risk for early-adulthood anxiety and depressive disorders in adolescents with anxiety and depressive disorders. *Archives of General Psychiatry, 55*, 56–64. doi:10.1001/archpsyc.55.1.56

Pines, M. (1975). *In praise of "invulnerables."* APA Monitor, 7.

Powers, A., Ressler, K. J., & Bradley, R. G. (2009). The protective role of friendship on the effects of childhood abuse and depression. *Depression and Anxiety, 26* (1), 46-53. doi: 10.1002/da.20534.

Rajendran, K., & Videka, L. (2006). Relational and academic components of resilience in maltreated adolescents. *Annals for the New York Academy of Sciences, 1094*, 345-349. doi: 10.1196/annals.1376.047

Randolph, K. A., Fraser, M. W., & Orthner, D.K. (2004). Educational resilience among youth at risk. Substance Use & Misuse, 39, 747-767. doi: 10.1081/JA-120034014

Rao, U., Hammen, C., Daley, S. (1999). Continuity of depression during the transition to adulthood: A 5-year longitudinal study of young women. *Journal of the American Academy of Child and Adolescent Psychiatry, 38*, 908-915. doi: 10.1097/00004583-199907000-00022

Rao, U., Ryan, N. D., Birmaher, B., Dahl, R. E., Williamson, B. A., Kaufman, J., Rao, R., & Nelson, B. (1995). Unipolar depression in adolescents: clinical outcome in adulthood. *Journal of the American Academy of Child and Adolescent Psychiatry*, 34, 566–578. doi: 10.1097/00004583-199505000-00009

Reimer, M. S. (2002). Gender, risk, and resilience in the middle school context. *Children & Schools, 24*, 35-47. doi: 10.1093/cs/24.1.35

Reyes, J. A., & Elias, M. J. (2011). Fostering social-emotional resilience among Latino youth. *Psychology in the Schools, 48*(7), 723-737. doi:10.1002/pits.20580

Rice, E., Merves, E., & Srsic, A. (2008). Perceptions of gender differences in the expression of emotional and behavioral disabilities. *Education and Treatment of Children 31*(4), 549-565. doi: 10.1353/etc.0.0035

Richardson, G. E. (2002). The metatheory of resilience and resiliency. *Journal of Clinical Psychology, 58*(3), 307-321. doi: 10.1002/jclp.10020

Romer, N., Ravitch, N. K., Tom, K., Merrell, K. W., & Wesley, K. L. (2011). Gender differences in positive social-emotional functioning. *Psychology in the Schools, 48*(10), 958-970. doi: 10.1002/pits.20604

Rossman, B. B. R., & Rea, J. G. (2005). The Relation of Parenting Styles and Inconsistencies to Adaptive Functioning for Children in Conflictual and Violent Families. *Journal of Family Violence, 20*(5), 261-277. doi: 10.1007/s10896-005-6603-8

Rouse, K. A. (2001). Resilient students' goals and motivation. *Journal of Adolescence, 24*(4), 461-472. doi: 10.1006/jado.2001.0383

Rudo, Z. H., Powell, D. S., & Dunlap, G. (1998). The effects of violence in the home on children's emotional, behavioral, and social functioning: A review of the literature. *Journal of Emotional and Behavioral Disorders, 6*(2), 94-113. Doi: 10.1177/106342669800600203

Rudolph, K. D., & Conley, C. S. (2005). The socioemotional costs and benefits of social-evaluative concerns: do girls care too much? *Journal of Personality, 73*(1), 115-138. doi: 10.1111/j.1467-6494.2004.00306.x

Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. In M. W. Kent & J. E. Rolf (Eds.), Primary prevention of psychopathology: Vol. 3. Social competence in children (pp. 49-74). Hanover, NH: University Press of New England.

Rutter, M. (1985). Resilience in the face of adversity. Protective factors and resistance to psychiatric disorder. *The British Journal of Psychiatry, 147* (6) 598-611; doi: 10.1192/bjp.147.6.598.

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry, 57*, 316–331. doi: 10.1111/j.1939-0025.1987.tb03541.x

Rutter, M. (1990). Psychosocial resilience and protective mechanisms. In J. Rolf, A.S. Masten, D. Cicchettti, K. H. Nuechterlein, & S. Weintraub (Eds.), *Risk and protective factors in the development of psychopathology* (pp. 181-214). New York: Cambridge University Press.

Rutter, M. (2006). Implications of resilience concepts for scientific understanding. *Annals for the New York Academy of Sciences, 1094*, 1-12. doi: 10.1196/annals.1376.002

Rutter, M., Kim-Cohen, J., & Maughan, B. (2006). Continuities and discontinuities in psychopathology between childhood and adult life. *Journal of Child Psychology and Psychiatry, 47*, 276–295. DOI: 10.1111/j.1469-7610.2006.01614.x

Sabourin Ward, C., & Haskett, M. E. (2008). Exploration and validation of clusters of physically abused children. *Child Abuse and Neglect, 32*(5), 577-588. doi: 10.1016/j.chiabu.2007.07.012

Salami, S.O. (2010). Moderating effects of resilience, self-esteem and social support on adolescents' reactions to violence. *Asian Social Sciences, 6* (12), 101-110. doi: 10.5539/ass.v6n12p101

Salzinger, S., Feldman, R. S., Hammer, M., and Rosario, M. (1993). The effects of physical abuse on children's social relationships. *Child Development, 64* (1), 169-187. doi: 10.1111/j.1467-8624.1993.tb02902.x

Sameroff, A. (2009). The transactional model. In A. Sameroff (Ed.), *The Transactional Model of Development: How Children and Contexts Shape Each Other* (pp. 3-21). Washington, DC: American Psychological Association.

Sameroff, A. J. (1995). General systems theories and developmental psychopathology. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental Psychopathology, Vol. 1, Theory and methods* (pp. 659-695). New York: John Wiley & Sons.

Sameroff, A. J. & Chandler, M. J. (1975). Reproductive risk and the continuum of caretaker casualty. In F. D. Horowitz (Ed.), *Review of child development research* (Vol. 4). Chicago: University of Chicago Press.

Sameroff, A. J., & Fiese, B. H. (2000). Transactional regulation: The developmental ecology of early intervention. In J. P. Shonkoff & S. J. Meisels (Eds.), *Handbook of Early Childhood Intervention*, 2nd ed. (pp. 135-139). New York: Cambridge University Press.

Sameroff, A.J., Seifer, R., Baldwin, A.L., & Baldwin, C.A. (1993). Stability of intelligence from preschool to adolescence: The influence of social and family risk factors. *Child Development*, 64, 80-97. doi: 10.2307/1131438

Sass, D. A., & Schmitt, T. A. (2013) Testing measurement and structural invariance: Implications for practice. In Teo, T. (Ed.) *Handbook of quantitative methods for educational research.* Rotterdam, The Netherlands: Sense Publishers.

Scaramella, L.V., Conger R.D., & Simmons R.L. (1999). Parental protective influences and gender-specific increases in externalizing and externalizing behaviors. *Journal of Research on Adolescence, 9*, 111–141. doi: 10.1207/s15327795jra0902_1

Schafer JL. Multiple imputation: a primer. Statistical Methods in Medical Research. 1999;8:3–15. doi: 10.1177/096228029900800102

Schoon, I., Parsons, S., & Sacker., A. (2004). Socioeconomic adversity, educational resilience, and subsequent levels of adult adaptation. *Journal of Adolescent Research, 19* (4), 383-404. doi: 10.1177/0743558403258856

Schultz, D. (1991). *Risk, resiliency, and resistance: Current research on adolescent girls*. New York: NY, Ms. Foundation for Women National Girls Initiative.

Schultz, D., Tharp-Taylor, S., Haviland, A., & Jaycox, L. (2009). The relationship between protective factors and outcomes for children investigated for maltreatment. *Child Abuse and Neglect, 33*(10), 684-698. doi: 10.1016/j.chiabu.2009.04.004

Shaffer, A., Yates, T. M., & Egeland, B. R. (2009). The relation of emotional maltreatment to early adolescent competence: developmental processes in a

prospective study. *Child Abuse and Neglect, 33*(1), 36-44. doi: 10.1016/j.chiabu.2008.12.005

Shaw, V.A. (2008). Conceptualizing and re-evaluating resilience across levels of risk, time, and domains of competence.

Seligman, M. P., & Csikszentmihalyi, M. (2001). 'Positive psychology: An introduction': Reply. *American Psychologist, 56*(1), 89-90. doi:10.1037/0003-066X.56.1.89

Shonk, S. M., & Cicchetti, D. (2001). Maltreatment, competency deficits, and risk for academic and behavioral maladjustment. *Developmental Psychology, 37*(1), 3-17. doi: 10.1037//0012-1649.37.1.3

Silverman, A.B., Reinherz, H.Z., & Giaconia, R.M. (1996). The long-term sequelae of child and adolescent abuse: a longitudinal community study. *Child Abuse and Neglect, 20* (8), 709-723. doi: 10.1371/journal.pone.0051424

Silvern, L., Karyl, J., Waelde, L., Hodges, W. F., Starek, J., Heidt, E., & Min, K. (1995). Retrospective reports of parental partner abuse: Relationships to depression, trauma symptoms and self-esteem among college students. *Journal Of Family Violence, 10*(2), 177-202. doi:10.1007/BF02110599

Smokowski, P. R., Mann, E. A., Reynolds, A. J., & Fraser M. W. (2004). Childhood risk and protective factors and late adolescent adjustment in inner city minority youth. *Children and Youth Services Review, 26*:63–91. doi: 10.1016/j.childyouth.2003.11.003

Soodak, L. C., & Podell, D. M. (1994). Teachers' thinking about difficult-to-teach students. *Journal of Educational Research, 88*(1), 44-51. doi: 10.1080/00220671.1994.9944833

Sousa, C., Herrenkohl, T. I., Moylan, C. A., Tajima, E. A., Klika, J. B., Herrenkohl, R. C., & Russo, M. J. (2011). Longitudinal Study on the Effects of Child Abuse and Children's Exposure to Domestic Violence, Parent-Child Attachments, and Antisocial Behavior in Adolescence. *Journal Of Interpersonal Violence, 26*(1), 111-136. doi: 10.1177/0886260510362883

Steinberg, L. (2014). Should the science of adolescent brain development inform public policy? *Court Review, 50,* 70-77.

Steiner, H., Garcia, I.G., and Matthews, Z. 1997. Posttraumatic stress disorder in incarcerated juvenile delinquents. *Journal of the American Academy of Child and Adolescent Psychiatry 36,* 357–365. doi: 10.1097/00004583-199703000-00014

Sternberg, K., Baradaran, L., Abbott, C., Lamb, M., & Guterman, E. (2006). Type of violence, age, and gender differences in the effects of family violence on children's behavior problems: A mega-analysis. *Developmental Review, 26*(1), 89-112. doi: 10.1016/j.dr.2005.12.001

Stevens, T., Morash, M., & Park, S. (2010). Late-Adolescent Delinquency: Risks and Resilience for Girls Differing in Risk at the Start of Adolescence. *Youth & Society, 43*(4), 1433-1458. doi: 10.1177/0044118x10386078

Stewart, S. (2012). Age and gender effects on resilience in children and adolescents. *International Journal of Mental Health Promotion, 9*(4), 16-25. doi: 10.1080/14623730.2007.9721845

Stronach, E. P., Toth, S. L., Rogosch, F., Oshri, A., Manly, J. T., & Cicchetti, D. (2011). Child maltreatment, attachment security, and internal representations of mother

and mother-child relationships. *Child Maltreatment, 16*(2), 137-145. doi: 10.1177/1077559511398294

Sun, J. & Stewart, D. (2007). Development of population-based resilience measures in the primary school setting. *Health Education*, 107 (6), 575-599.

Sunday, S., Labruna, V., Kaplan, S., Pelcovitz, D., Newman, J., & Salzinger, S. (2008). Physical abuse during adolescence: Gender differences in the adolescents' perceptions of family functioning and parenting. *Child Abuse and Neglect, 32*(1), 5-18. doi: 10.1016/j.chiabu.2007.03.025

Tabone, J. K., Guterman, N. B., Litrownik, A. J., Dubowitz, H., Isbell, P., English, D. H. Runyan, D. K., & Thompson, R. (2011). Developmental trajectories of behavior problems among children who have experienced maltreatment: Heterogeneity during early childhood and ecological predictors. *Journal of Emotional and Behavioral Disorders, 19*, 204-216. doi: 10.1177/1063426610383861

Tajima, E.A. (2000). The relative importance of wife abuse as a risk factor for violence against children. *Child Abuse & Neglect, 24* (11), 1383-1398. doi: 10.1016/S0145-2134(00)00194-0

Tajima, E. A., Herrenkohl, T. I., Moylan, C. A., & Derr, A. S. (2011). Moderating the Effects of Childhood Exposure to Intimate Partner Violence: The Roles of Parenting Characteristics and Adolescent Peer Support. *Journal of Research on Adolescence, 21*(2), 376-394. doi: 10.1111/j.1532-7795.2010.00676.x

Tedeschi, R. G., & Kilmer, R. P. (2005). Assessing Strengths, Resilience, and Growth to Guide Clinical Interventions. *Professional Psychology: Research and Practice, 36*(3), 230-237. doi: 10.1037/0735-7028.36.3.230

Teisl M, Cicchetti D. (2008). Physical abuse, cognitive and emotional processes, and aggressive/disruptive behavior problems. *Social Development, 17*,1–23.doi: 10.1111/j.1467-9507.2007.00412.x

Tiet, Q. Q. (2002). Dimensions of the construct of resilience and adaptation among inner-city youth. *Journal of Adolescent Research,* 17, 260-276. doi: 10.1177/0743558402173003

Tiet, Q. Q., Bird, H. R., Davies, M., Hoven, C., Cohen, P., Jensen, P. S. & Goodman, S. (1998). Adverse life events and resilience. *Journal of the American Academy of Child and Adolescent Psychiatry*, 37, 1191-1200. doi: 10.1097/00004583-199811000-00020

Tiet, Q., Huizinga, D., & Byrnes, H. (2010). Predictors of resilience among inner city youths. *Journal of Child and Family Studies, 19* (3), 360-378. doi:10.1007/s10826-009-9307-5

Thompson, M. P., Arias, I., Basile, K. C., & Desai, S. (2002). The association between childhood physical and sexual victimization and health problems in adulthood in a nationally representative sample of women. *Journal Of Interpersonal Violence, 17*(10), 1115-1129. doi:10.1177/088626002236663

Tolan, P. H. (1996). How resilient is the concept of resiliency. The Community Psychologist, 29, 12-15.

Toth, S. L., & Cicchetti, D. (1996). The impact of relatedness with mother on school functioning in maltreated children. *Journal of School Psychology, 34*(3), 247-266. doi: 10.1016/0022-4405(96)00014-3

Trickett, P. K., & Susman, E. (1988). Parental perceptions of child-rearing practices in physically abusive and nonabusive families. *Developmental Psychology, 24*(2), 270-276. doi: 10.1037/0012-1649.24.2.270

Ungar, M. (2004). A Constructionist Discourse on Resilience: Multiple Contexts, Multiple Realities among At-Risk Children and Youth. *Youth & Society, 35*(3), 341-365. doi: 10.1177/0044118x03257030

Ungar, M. (2013). Resilience after maltreatment: the importance of social services as facilitators of positive adaptation. *Child Abuse and Neglect, 37*(2-3), 110-115. doi: 10.1016/j.chiabu.2012.08.004

Urben, S., Habersaat, S., Suter, M., Pihet, S., De Ridder, J., Stephan, P. (2016). Gender differences in at risk versus offender adolescents: A dimensional approach of antisocial behavior. *Psychiatric Quarterly, 87*, 619-631. doi: 10.1007/s11126-015-9414-y

Wade, T., Cairney, J., & Pevalin, D. (2002). Emergence of gender differences in depression during adolescence: national panel results from three countries. *Journal of American Academy of Child and Adolescent Psychiatry, 41* (2), 190-198. doi: 10.1097/00004583-200202000-00013

Wall A.E., & Kohl, P.L. (2007). Substance use in maltreated youth: Findings from the National Survey of Child and Adolescent Well-Being. *Child Maltreatment, 12*(1), 20–30. DOI: 10.1177/1077559506296316

Walsh, W. A., Dawson, J., & Mattingly, M. J. (2010). How are we measuring resilience following childhood maltreatment? Is the research adequate and consistent? What

is the impact on research, practice, and policy? *Trauma, Violence, & Abuse*, *11*(1), 27-41. doi: 10.1177/1524838009358892

Wang, M. C., Haertel, G. D., & Walberg, H. J. (1994). Educational resilience in inner cities. In M. C. Wang, E. W. Gordon, M. C. Wang, E. W. Gordon (Eds.) , Educational resilience in inner-city America: Challenges and prospects (pp. 45-72). Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.

Ward, C. L., Martin, E., Theron, C., & Distiller, G. B. (2007). Factors affecting resilience in children exposed to violence. *South African Journal Of Psychology*, *37*(1), 165-187.

Weissman, M. M., Wolk, S., Wickramaratne, P., Goldstein, R. B., Adams, P., Greenwald, S., et al. (1999). Depressed adolescents grown up. *Journal of the American Medical Association, 281*, 1707-1713. doi:10.1001/jama.281.18.1707

Werner, E. E. (1990). Protective factors and individual resilience. In R. Meisells & J. Shonkoff (Eds.), *Handbook of early intervention.* Cambridge, UK: Cambridge.

Werner, E. E. (1995). Resilience in development. *Current Directions in Psychological Science*, 3, 81-85. doi: 10.1111/1467-8721.ep10772327

Werner, E.E. (1996) 'Vulnerable but invincible: high risk children from birth to adulthood', *European Child & Adolescent Psychiatry*, Vol. 5, pp. 47–51. doi: 10.1007/BF00538544

Werner, E. E., & Smith, R.S. (1982). *Vulnerable but invincible: A study of resilient children*. New York: McGraw-Hill.

Werner, E. E., & Smith, R. S., (1992). *Overcoming the odds: High risk children from birth to adulthood.* Ithaca, NY: Cornell University Press.

Werner, E. E., & Smith, R. S. (2001). *Journeys from child- hood to midlife: Risk, resilience and recovery*. Ithaca, NY: Cornell University Press.

Wind, T. & Silvern, L. (1994). Parenting and family stress as mediators of the long-term effects of child abuse. *Child Abuse & Neglect, 18,* 439-453. doi:10.1016/0145-2134(94)90029-9

Windle, M. (1992) A longitudinal study of stress buffering for adolescent problem behaviors. *Developmental Psychology*, 28, 522-530. doi: 10.1037/0012-1649.28.3.522

Wolfe, D. A., Crooks, C. V., Lee, V., McIntyre-Smith, A., & Jaffe, P. G. (2003). The effects of children's exposure to domestic violence: a meta-analysis and critique. *Clinical Child and Family Psychology Review, 6*, 171-187. doi: 10.1023/A:1024910416164

Wolfe, D. A., & Mash, E. J. (2006). Behavioral and emotional disorders in adolescents: Nature, assessment, and treatment. New York: Guilford Press.

Wolin, S. J., & Wolin, S. (1993). *Bound and Determined: Growing up resilient in a troubled family* New York: Villard.

Wright, M. O., Fopma-Loy, J., & Fischer, S. (2005). Multidimensional assessment of resilience in mothers who are child sexual abuse survivors. *Child Abuse and Neglect, 29*(10), 1173-1193. doi: 10.1016/j.chiabu.2005.04.004

Vanderbilt-Adriance, E. & Shaw, D. (2008). Conceptualizing and re-evaluating resilience across levels of risk, time, and domains of competence. *Clinical Child and Family Psychology Review, 11* (1-2), 30-58. doi:10.1007/s10567-008-0031-2

Veltman, M. M., & Browne, K. D. (2001). Three decades of child maltreatment research: Implications for the school years. *Trauma, Violence, & Abuse, 2*(3), 215-239. doi:10.1177/1524838001002003002

Young, J. F., Berenson, K., Cohen, P., & Garcia, J. (2005). The role of parent and peer support in predicting adolescent depression: A longitudinal community study. *Journal of Research on Adolescence, 15*, 407–423. doi: 10.1111/j.1532-7795.2005.00105.x

Appendix 1: Variable Item Content

Parental Support Indicator Variables:

1) How close do you feel to your caregiver? Would you say...

2) How much do you think your caregiver cares about you? Would you say...

3) When I'm with my caregiver, I feel good. How true is this?

4) When I'm with my caregiver, I feel mad. How true is this?

5) When I'm with my caregiver, I feel unhappy. How true is this?

6) My caregiver enjoys spending time with me. How true is this?

7) My caregiver does a lot to help me. How true is this?

8) My caregiver doesn't seem to have enough time for me. How true is this?

9) My caregiver doesn't seem to know how I feel about things. How true is this?

Peer Support Indicator Variables:

10) I have nobody to talk to at school. How often is this true about you? Would you

11) I have lots of friends at school. (How often is this true about you? Would you say never, hardly ever, sometimes, most of the time, or always true?)

12) I feel alone at school. (How often is this true about you? Would you say never, hardly ever, sometimes, most of the time, or always true?)

13) I can find a friend when I need one. (How often is this true about you? Would you say never, hardly ever, sometimes, most of the time, or always true?)

14) It's hard to get kids in school to like me. (How often is this true about you? Would you say never, hardly ever, sometimes, most of the time, or always true?)

15) I get along with other kids at school. (How often is this true about you? Would you say never, hardly ever, sometimes, most of the time, or always true?)

16) I feel left out of things at school. (How often is this true about you? Would you say never, hardly ever, sometimes, most of the time, or always true?)

17) There are no kids at school that I can go to when I need help. (How often is this true about you? Would you say never, hardly ever, sometimes, most of the time, or always true?)

18) I am well liked by the kids at school. (How often is this true about you? Would you say never, hardly ever, sometimes, most of the time, or always true?)

Appendix 2: Sample Characteristics and Psychometric Properties Tables with Separating Gender

Table 12.

Characteristics of the Sample Divided by Gender

Characteristics	Females		Males	
	N	*%*	*N*	*%*
Age				
11	36	15.9	28	19.0
12	30	13.2	26	17.7
13	28	12.3	25	17.0
14	42	18.5	25	17.0
15	38	16.7	21	14.3
16	32	14.1	17	11.6
17	21	9.3	5	3.4
Race/Ethnicity				
Native Indian/Alaskan	20	8.8	24	16.3
Asian/Hawaiian/Pacific Islander	13	5.7	4	2.7
Black	54	23.8	39	26.5
White	133	58.6	79	53.7
Refused/Don't know	7	3.1	1	0.7
Hispanic Origin				
Not Hispanic	168	74.0	118	80.3
Mexican	39	17.2	17	11.6
Puerto Rican	7	3.1	7	4.8
Other Hispanic	13	5.7	5	3.4

Note. $n = 227$ for females and $n = 147$ for males.

Table 13.

Psychometric Properties of Variables for Initial Models Separated by Gender

	M		Min-Max	
	Females	Males	Females	Males
Parental Support				
Closeness to Caregiver	8.21 (2.17)	8.64 (1.83)	2-10	2-10
Parental Emotional Security	9.48 (2.46)	10.11 (2.00)	3-12	3-12
Parental Involvement	12.22 (2.90)	13.09 (2.41)	4-16	5-16
Peer Support				
Peer Support: Self-Report	32.88 (10.35)	34.69 (10.34)	21-72	21-69
Peer Support: Parental-Report	9.78 (1.55)	9.96 (1.56)	6-12	5-12
Lack of Negative Peers	25.52 (4.98)	26.30 (4.61)	6-30	6-30
Behavioral Problems				
Self-Report (YSR)	16.64 (8.97)	14.33 (8.49)	0-42	0-40
Caregiver-Report (CBCL)	14.23 (11.13)	12.78 (10.99)	0-52	0-49
Emotional Problems				
Self-Report (YSR)	14.89 (9.64)	10.40 (8.23)	0-52	0-47
Caregiver Report (CBCL)	10.36 (8.93)	7.81 (7.58)	0-46	0-38
Depression (CDI)	11.56 (8.04)	8.62 (6.84)	0-42	0-37
Trauma (TSCC)	10.44 (5.98)	7.66 (5.75)	0-28	0-29

Note. SD for each mean listed in parentheses.

Table 14.

Psychometric Properties of Variables in Final Structural Model Separated by Gender

	M		Min-Max	
	Females	Males	Females	Males
Parental Support				
V1	3.78 (1.31)	4.12 (1.10)	1-5	1-5
V2	4.44 (1.03)	4.49 (0.95)	1-5	1-5
V3	3.30 (0.91)	3.40 (0.85)	1-4	1-4
V4	2.97 (0.96)	3.33 (0.88)	1-4	1-4
V5	3.21 (0.94)	3.40 (0.82)	1-4	1-4
V6	3.42 (0.85)	3.43 (0.93)	1-4	1-4
V7	3.46 (0.85)	3.58 (0.82)	1-4	1-4
V8	2.99 (1.04)	3.31 (0.82)	1-4	1-4
V9	2.37 (1.13)	2.80 (1.10)	1-4	1-4
Peer Support				
V10	4.40 (0.98)	4.22 (1.16)	1-5	1-5
V11	4.32 (1.01)	4.11 (1.19)	1-5	1-5
V12	4.37 (1.06)	4.44 (0.93)	1-5	1-5
V13	4.08 (1.21)	4.04 (1.22)	1-5	1-5
V14	4.19 (1.08)	3.92 (1.18)	1-5	1-5
V15	4.09 (1.01)	4.05 (1.05)	1-5	1-5
V16	4.13 (1.02)	4.17 (1.04)	1-5	1-5
V17	4.28 (1.07)	3.89 (1.36)	1-5	1-5
V18	3.94 (1.01)	3.83 (1.04)	1-5	1-5
Behavioral Problems				
Self-Report (YSR)	16.63 (8.99)	14.35 (8.52)	0-42	0-40
Caregiver-Report (CBCL)	14.25 (11.11)	12.91 (11.05)	0-52	0-49
Emotional Problems				
Self-Report (YSR)	14.86 (9.66)	10.44 (8.24)	0-52	0-47
Caregiver Report (CBCL)	10.36 (8.91)	7.90 (7.63)	0-46	0-38
Depression (CDI)	11.50 (8.02)	8.67 (6.89)	0-42	0-37
Trauma (TSCC)	10.44 (5.99)	7.71 (5.80)	0-28	0-29

Note. SD for each mean listed in parentheses.

Appendix 3: Factor Loadings for Respecified Models Prior to EFA

Table 15.

Unstandardized, Standardized, and Significance Levels for Respecified Model 1 (Standard Errors in Parentheses)

Parameter Estimate	*Unstandardized*	*Standardized*	*P*
Respecified Measurement Model Estimates			
Model 2			
Parental Support → X_1	1.00	N/A	N/A
Parental Support → X_2	1.08 (.06)	16.71	.000
Parental Support → X_3	1.34 (.08)	17.20	.000
Peer Support → X_4	1.00	N/A	N/A
Peer Support → X_5	.08 (.02)	4.87	.000
Peer Support → X_6	.27 (.05)	5.53	.000
Behavioral Resilience → X_7	1.00	N/A	N/A
Behavioral Resilience → X_8	.62 (.08)	7.90	.000
Emotional Resilience → X_9	1.23 (.10)	11.97	N/A
Emotional Resilience → X_{10}	.78 (.10)	7.58	.000
Emotional Resilience → X_{11}	1.55 (.13)	11.68	.000
Emotional Resilience → X_{12}	.87 (.09)	9.77	.000
Error in X_1	1.21 (.15)	8.34	.000
Error in X_2	1.85 (.19)	9.68	.000
Error in X_3	2.33 (.27)	8.65	.000
Error in X_4	80.68 (8.44)	9.56	.000
Error in X_5	2.23 (.17)	13.22	.000
Error in X_6	19.40 (1.50)	12.95	.004
Error in X_7	82.17 (6.50)	12.65	.000
Error in X_8	107.98 (7.71)	14.01	.000
Error in X_9	43.48 (6.23)	6.98	.000
Error in X_{10}	102.63 (8.28)	12.40	.000
Error in X_{11}	17.69 (6.33)	2.80	.005
Error in X_{12}	67.84 (5.47)	12.41	.000
Error covariance X_7 and X_9	12.38 (3.59)	3.45	
Error covariance X_8 and X_{10}	31.50 (4.32)	7.29	
Error covariance X_9 and X_{11}	59.48 (6.29)	9.45	
Error covariance X_9 and X_{12}	-3.63 (4.35)	-.83	
Error covariance X_{10} and X_{11}	-12.04 (3.80)	-3.17	
Error covariance X_{10} and X_{12}	23.90 (3.97)	6.02	
Error covariance X_9 and X_{10}	-2.55 (3.37)	-.76	

Table 16.

Unstandardized, Standardized, and Significance Levels for Respecified Model 2 (Standard Errors in Parentheses)

Parameter Estimate	*Unstandardized*	*Standardized*	*p*
Respecified Measurement Model Estimates			
Model 2			
Parental Support → X_1	1.00	N/A	N/A
Parental Support → X_2	1.08 (.06)	16.71	.000
Parental Support → X_3	1.34 (.08)	17.20	.000
Peer Support → X_4	1.00	N/A	N/A
Peer Support → X_5	.08 (.02)	4.87	.000
Peer Support → X_6	.27 (.05)	5.53	.000
Overall Resilience → X_7	1.00	N/A	N/A
Overall Resilience → X_8	.62 (.08)	7.90	.000
Overall Resilience → X_9	1.23 (.10)	11.97	N/A
Overall Resilience → X_{10}	.78 (.10)	7.58	.000
Overall Resilience → X_{11}	1.55 (.13)	11.68	.000
Overall Resilience → X_{12}	.87 (.09)	9.77	.000
Error in X_1	1.21 (.15)	8.34	.000
Error in X_2	1.85 (.19)	9.68	.000
Error in X_3	2.33 (.27)	8.65	.000
Error in X_4	80.68 (8.44)	9.56	.000
Error in X_5	2.23 (.17)	13.22	.000
Error in X_6	19.40 (1.50)	12.95	.004
Error in X_7	82.17 (6.50)	12.65	.000
Error in X_8	107.98 (7.71)	14.01	.000
Error in X_9	43.48 (6.23)	6.98	.000
Error in X_{10}	102.63 (8.28)	12.40	.000
Error in X_{11}	17.69 (6.33)	2.80	.005
Error in X_{12}	67.84 (5.47)	12.41	.000
Error covariance X_7 and X_9	12.38 (3.59)	3.45	
Error covariance X_8 and X_{10}	31.50 (4.32)	7.29	
Error covariance X_9 and X_{11}	59.48 (6.29)	9.45	
Error covariance X_9 and X_{12}	-3.63 (4.35)	-.83	
Error covariance X_{10} and X_{11}	-12.04 (3.80)	-3.17	
Error covariance X_{10} and X_{12}	23.90 (3.97)	6.02	
Error covariance X_9 and X_{10}	-2.55 (3.37)	-.76	