PARENTING AND CHILD BEHAVIOR PROBLEMS THROUGHOUT MIDDLE CHILDHOOD AND ADOLESCENCE:

EXAMINING PREDICTORS OF PARENTING ACROSS CHILD DEVELOPMENT

A Dissertation
Submitted to
The Temple University Graduate Board

In Partial Fulfillment of the
Requirements for the Degree
DOCTOR OF PHILOSOPHY

---

by
Brian J. Shields, M.A.
July, 2016

Dissertation Committee:

Deborah Drabick, Ph.D., Department of Psychology, Temple University

Lauren Ellman, Ph.D., Department of Psychology, Temple University

Thomas Olino, Ph.D., Department of Psychology, Temple University

Tania Giovannetti, Ph.D., Department of Psychology, Temple University

Ronald Taylor, Ph.D., Department of Psychology, Temple University

Hongling Xie, Ph.D., Department of Psychology, Temple University

ABSTRACT

Parenting and Child Behavior Problems throughout Middle Childhood and Adolescence: Examining Predictors of Parenting across Child Development

Brian J. Shields, M.A.

Doctor of Philosophy

Temple University, 2015

Doctoral Advisory Committee Chair: Deborah A.G. Drabick, Ph.D.

Abstract

Parenting behaviors have long been understood to play a key role in youth development across middle childhood and adolescence. However, questions remain regarding changes in parenting behavior profiles throughout these developmental periods as parents respond to the changing developmental needs of their children, and how these profiles are associated with parent, child, and contextual factors. Additionally, a further understanding of how these factors impact stability and/or change in parenting profiles over time is needed. To address these gaps, the current dissertation investigated stability and change in parenting behaviors during childhood and adolescence. Person-centered analyses were used to identify classes of caregivers who differed in frequency and quality of parenting behaviors across three time points (child ages 10-12, 12-14, and 16; Times 1, 2, and 3, respectively). Cross-sectional differences between classes on a number of parent, child, and contextual variables also were examined. Stability and transitions among parenting classes then were explored, and caregiver depression, youth temperamental positive mood, caregiver stress, and family relationship variables were examined as predictors of stability and transition among classes. Results revealed the presence of a Positive Parenting class at each time point. A Low Warmth/Low Communication class was observed at

Time 1 only, and a Poor Supervision class was seen at Times 1 and 2. Additionally, an Adequate Parenting class and Consistent Discipline Only class were seen at Times 2 and 3. Classes differed on a number of variables, including caregiver depression, youth temperamental positive mood, youth externalizing behavior problems, and youth marijuana and hard drug use. Latent transition analyses revealed stability across each time point within the Positive Communication class, and within the Adequate Parenting class from Time 2 to Time 3. Transitions to other classes were consistent with developmentally expected changes in caregiver supervision and caregiver-child communication. Finally, child temperamental mood was the only significant predictor of transition between parenting classes, and only from Time 1 to Time 2. Results indicate that the quality and quantity of parenting behaviors differ depending on the age and related developmental stage of the child, and identified classes differ in terms of a number of child, caregiver, and broader contextual factors. These parenting behaviors and associated factors may be potential targets for enhanced and developmentally sensitive prevention and intervention efforts.

DEDICATION

This dissertation is dedicated first to my parents, Bill and Lois Shields. They have always encouraged me to aim high and work hard to achieve my goals, and without their love, support, and belief in me I would not have been able to pursue this goal.

This is also dedicated to my beautiful wife, Dr. Ashley Hampton Shields, who has been my rock throughout this process. It has been my greatest joy to go through this stage of my life and career with you by my side. I always dreamed of leaving Philadelphia with a doctorate, but never dreamed I would also be leaving with such a loving and supportive partner. I love you.

ACKNOWLEDGEMENTS

I would like to first acknowledge and thank Dr. Deb Drabick, my advisor, for her unwavering support and feedback as I completed my dissertation. Her dedication to my professional development throughout my graduate school career has helped to get me to where I am now, and I will always be grateful for her willingness to pour so much of her time and energy into my training.

I would also like to acknowledge the faculty, staff, and participating families at the Center for Education and Drug Abuse Research at the University of Pittsburgh. I am thankful for the opportunity to use such a rich dataset to complete this dissertation, and will always appreciate the study coordinators and research assistants who collected the data, as well as the families willing to give their time to this project. This parent project was sponsored by the National Institute for Drug Abuse.

TABLE OF CONTENTS

Page

LIST OF TABLES

Table Page

LIST OF FIGURES

Figure Page

CHAPTER 1

INTRODUCTION

Decades of research have helped to elucidate the important role that parenting plays in the development of children. However, there remain gaps in the literature regarding the changes parents may make in the types of parenting behaviors used in order to meet the needs of their children as they move through different stages of development. Additionally, parents may be differentially susceptible to influence from individual-, child-, and context-specific factors that affect how they parent, with these influences variably affecting parenting practices depending on their child's developmental stage. As such, the question of why parents parent the way they do remains important to consider as well (Roskam & Meunier, 2012). A more complete understanding of the stability and/or change in parenting behaviors longitudinally, as well as the factors that may influence stability and change, will not only further the field's knowledge of parenting behaviors over time, but also aid in improving methods in which interventions can further promote positive parenting within families (Roskam & Meuner, 2012). Therefore, the current study utilized person-centered approaches to examine patterns of parenting longitudinally across middle childhood and adolescence, and to explore factors that may be associated with stability and/or change in parenting over these time periods.

A number of different approaches have been taken when studying effects of parenting on child development. One approach has focused on specific parenting behaviors and how they are associated with child outcomes such as conduct problems and substance use, both directly and transactionally. Parenting behaviors such as warmth, consistency, discipline, monitoring, and communication have been highlighted as key factors that influence child development across

middle childhood and adolescence, both as protective factors against the development of conduct problems and substance use, and risk factors that may promote or exacerbate these problems (e.g., Dishion, Nelson, & Bullock, 2004; Dodge, Pettit, & Bates, 1994; Hipwell, Keenan, Kasza, Loeber, Stouthamer-Lober, & Bean, 2008; Lansford et al., 2002; Rothbaum & Weisz, 1994). A second approach commonly used has been to examine particular parenting styles, as originally proposed by Baumrind (1971). This model conceptualized parenting styles along two dimensions of parenting behaviors: support and control (Maccoby & Martin, 1983; Roskam & Meunier, 2012). Support refers to the emotional aspect of parenting, including parental warmth and acceptance, parental monitoring of their child's behavior, parental involvement, encouragement of child autonomy, and establishment of clear guidelines for children. Control refers to direct actions that parents take to control their child's behavior, including parental discipline and rewarding desired behavior (Roskam & Meunier, 2012). Baumrind (1971) identified three styles of parenting behaviors: authoritative (parents high on both support and control), authoritarian (parents high on control, but low on support), and permissive (parents high on support, but low on control). A fourth style, neglectful parenting (parents low on both support and control), was later identified by Maccoby and Martin (1983). Decades of research on parenting styles have consistently found that parents described as more authoritative in their parenting have children who perform better in school, are more competent socially, and are less likely to have internalizing or externalizing problems (Steinberg, 2001). These findings have been supported across diverse samples, including various ethnic and socioeconomic groups (Akhter, Hanif, Tariq, & Atta, 2011; Calafat, Garcia, Juan, Becoña, & Fernández-Hermida, 2014; García & Gracia, 2009; Hoeve, Dubas, Gerris, van der Laan, & Smeenk, 2011; Martinez & Garcia, 2008;

Mason, Cauce, Gonzales, & Hiraga, 1996) and among adolescent juvenile offenders (Steinberg, Blatt-Eisengart, & Cauffman, 2006; Williams & Steinberg, 2011).

The current study expands upon these previous approaches by focusing on *profiles* of parenting behaviors, rather than parenting *styles*, based on individual parenting practices (e.g., caregiver-child communication, caregiver warmth, consistent discipline, and caregiver supervision) that have been frequently examined in relation to child outcomes. Despite consistent findings pointing to the benefits of authoritative parenting on child development, there is an ever-growing understanding that a number of factors influence the relation between parenting style and the impact on youth development (Darling & Steinberg, 1993). For example, African American children benefit with regard to their social development when their caregivers utilize authoritarian parenting styles, contrary to what one might believe given findings from Caucasian samples (Darling & Steinberg, 1993). The current study was partially rooted in Darling and Steinberg's (1993) contextual model of parenting style that posits that parenting *styles* moderate the relation between specific parenting practices and child and adolescent outcomes, recognizing that "Authoritative" parents may utilize different levels of specific parenting practices depending on multiple other factors. The analysis approach utilized in the current study, as discussed in greater detail below, allowed for a more nuanced examination of parenting among the present sample and across different developmental periods, going beyond the traditional dimensions of "support" and "control" examined in the majority of the extant literature.

Data analytic approaches that led to the formulation of the four-style parenting typology that is most commonly utilized today were variable-centered in nature. One limitation of using variable-centered approaches is that findings may not be applicable to individuals who greatly deviate from the mean on variables of interest (Labouvie, Pandina, & Johnson, 1991; Nylund,

Bellmore, Nishina, & Graham, 2007). For parenting specifically, as noted by McGroder (2000), there may be a lack of ecological validity for parenting classes when using a variable-centered approach among samples of individuals that are different than the predominantly White, middle-class, two-parent families samples used in Maccoby and Martin's (1983) original work. Person-centered approaches, such as latent class analysis (LCA), allow for examining observed patterns of responses within individuals, and then grouping heterogeneous groups of individuals into classes based on quantitative and/or qualitative similarities on dimensions of interest (Muthén & Muthén, 2000; Nylund et al., 2007). As such, the current study utilized a person-centered approach to not only aid in the identification of parenting profiles across each time point examined, but to also examine the patterns of stability and change in parenting profiles across time. Person-centered approaches have been used more frequently in parenting research of late (e.g., Cook, Roggman, & D'zatko, 2012; Luyckx et al., 2012; McGroder, 2000) and have allowed for the investigation of differences across a number of key parenting variables in understanding the overall profiles of parenting used by caregivers, as well as the relation between parenting behaviors and youth outcomes. For example, Cook and colleagues (2012) utilized a person-centered approach to identify classes of parenting among 2,631 mothers and their children enrolled in the Early Head Start Research and Evaluation Project. Mothers were rated on both positive and negative parenting behaviors such as sensitivity, cognitive stimulation, intrusiveness, negative regard, and detachment. Analyses revealed three classes of parenting behaviors at each point of the study (children aged 14, 24, and 36 months): developmentally supportive, unsupportive, and negative. In another study, McGroder (2000) examined patterns of parenting behaviors among 193 African American mothers with preschool-age children utilizing cluster analysis. Three dimensions of parenting were considered, specifically aggravation,

nurturance, and cognitive stimulation, and four profiles of parenting were identified: Aggravated but Nurturant, Cognitively Stimulating, Patient and Nurturant, and Low Nurturance. Additionally, these parenting classes were related to child outcomes including school readiness and maturity. This recent focus on identifying patterns of parenting behaviors that do not rely exclusive on the traditional dimensions of support and control has enhanced the field's understanding of how individual parenting behaviors are utilized in the context of child and adolescent development, as well as pointed to the need to continue to investigate the relation between profiles of parenting and child outcomes, especially in middle childhood and adolescence. Below, I discuss important relations between individual parenting characteristics and youth outcomes examined in the present study.

Associations between Parenting Behaviors and Youth Conduct Problems and Substance Use

A long history of research has highlighted the important role parenting behaviors play in the development and maintenance of youth conduct problems and substance use. Parenting behaviors such as warmth, consistency, discipline, monitoring, and communication have been highlighted as key factors that influence child development across middle childhood and adolescence, both as protective factors against the development of conduct problems and substance use, and risk factors that may promote or exacerbate these problems (e.g., Dishion et al., 2004; Dodge, Pettit, & Bates, 1994; Hipwell et al., 2008; Lansford et al., 2002; Rothbaum & Weisz, 1994). The relation between parenting profiles and youth conduct problems and substance use was examined in the current study for two reasons. First, I hoped to expand previous work by looking at the longitudinal relation between parenting profiles and youth conduct problems and substance use, as much of the previous work has investigated profiles or

clusters of parenting cross-sectionally. Longitudinal examination of profiles of parenting and youth outcomes would also shed light on whether previously seen patterns of parenting and youth outcomes hold when using person-centered approaches to derive parenting classes versus those used in previous work. Second, these findings would provide external validity to the empirically derived parenting profiles. Given that studies are now deriving parenting profiles that are dissimilar to the traditional classification of Baumrind (1971) and Maccoby and Martin (1983; e.g., Cook et al., 2012), clinical researchers have developed strategies to address complications that arise as a result of the multiple ways in which researchers define psychological disturbances (Drabick, Gadow, & Loney, 2007). One approach developed to address these complications examined psychosocial risk factors as validators of behavioral syndromes (Feighner et al., 1972; Robins & Guze, 1970). Previous studies have successfully utilized this method to compare the source-specific symptoms of a number of common childhood disorders to differentiate different groups (e.g., oppositional defiant disorder [ODD], ADHD; Drabick, Gadow, Carlson, & Bromet, 2004; Drabick et al., 2007; Gadow, DeVincent, & Drabick, 2008; Offord et al., 1996). Below, I describe previous work examining relations among the parenting practices examined in the current study and youth outcomes to provide further background.

Harsh and inconsistent parental discipline has received strong support as a risk factor for conduct problems. Parents are important agents in the socialization of their children through their roles as disciplinarians (Halgunseth, Perkins, Lippold, & Nix, 2013). As noted by Halgunseth and colleagues (2013), children learn appropriate behaviors through consistent use of rewards and discipline, which over time facilitate their developing and engaging in acceptable social behaviors. However, inconsistent discipline over time may lead youth to believe that they can

avoid parental punishment and consequently may be more likely to engage in negative behaviors. Longitudinal studies have supported the notion that inconsistent discipline puts youth at risk for negative outcomes. For example, one study of boys between the ages of 7 and 12 found that inconsistent discipline predicted conduct problems 6 years later (Loeber, Green, Keenan, & Lahey, 1995). Additional longitudinal models have supported the notion that inconsistent discipline puts youth at risk for developing conduct problems and having more contact with the criminal justice system (Halgunseth et al., 2013; Lansford et al., 2002; Manongdo & Ramirez Garcia, 2011; Simmons, Wu, Conger, & Lorenz; 1994). With regard to substance use, consistent parental discipline has been found to reduce alcohol use among adolescents (Barnes, Reifman, Farrell, & Dintcheff, 2000; Jones, Forehand, Brody, & Armistead, 2003), as well as protect youth against developing intent to use alcohol when youth were in grades 1 through 8 (Tildesley & Andrews, 2008).

Parental emotional support and acceptance are also important throughout adolescence, and caregivers' behaviors characterized by higher levels of rejection and lower levels of emotional support are associated with children's aggressive behavior problems and substance use (Asher, Parkhurst, Hymel, & Williams, 1990; Droomers, Schrijvers, Casswell, & Mackenbach, 2003; Khaleque & Rohner, 2002; Kumpfer & Turner, 1990; Sentse, Veenstra, Lindenberg, Verhulst, & Ormel., 2009). In fact, it has been proposed that youth who experience greater levels of warmth and support from their parents are protected against increased alcohol use through their development (Wills & Cleary, 1996). Additionally, higher levels of caregiver control over their adolescents, especially psychological control, which is thought to be related to the development of autonomy, have been linked with externalizing problems (Barber & Harmon, 2002).

As noted above, adolescence is a time that ushers in necessary changes for caregivers as they are required to adjust their parenting practices to meet the developmental needs of their children. However, parenting behaviors remain influential during this period, as it continues to be important for adolescents to be connected with their caregivers to receive necessary guidance and support as they face various cognitive, emotional, and social challenges (Fosco, Stormshak, Dishion, & Winter, 2012; Hill, Bromell, Tyson, & Flint, 2007). Specifically, a study by Dishion and colleagues (2004) involved observations of parent-adolescent interactions and found that parental disengagement was predictive of growth in their children's association with deviant peers and delinquent outcomes. Parental emotional support and acceptance also are important throughout adolescence, and higher levels of caregiver rejection and lower levels of emotional support are associated with higher levels of youth conduct problems and alcohol use during adolescence (Asher et al., 1990; Barnow, Schuckit, Lucht, Joh, & Freyberger, 2002; Khaleque & Rohner, 2002; Sentse et al., 2009; Wills, Resko, Ainette, & Mendoza, 2004). Additionally, higher levels of caregiver control over their adolescents, especially psychological control, have been linked with externalizing problems (Barber & Harmon, 2002).

Caregiver monitoring also is associated with adolescent behavior problems and substance use. Effective caregiver monitoring allows for appropriate responses to youths' needs, as well as to misbehavior (Fosco et al., 2012). However, lower levels of caregiver monitoring of their adolescent's behavior and engagement in their adolescent's activities has been linked with detrimental outcomes, including antisocial behavior and substance use (Dishion & McMahon, 1998; Dishion et al., 2004; Kumpfer & Alvarado, 2003; Siebenbruner, Englund, Egeland, & Hudson, 2006). Indeed, family-based intervention studies have found evidence that increasing parental monitoring is associated with decreases in substance use in adolescence (Dishion,

Nelson, & Kavanagh, 2003; Spoth, Redmond, & Shin, 2001). Additionally, parental monitoring has received support as a protective factor against adolescent delinquent behavior and association with deviant peer groups (de Kemp, Scholte, Overbeek, & Engels, 2006; Dishion et al., 2003; Hoeve et al., 2009; Laird, Criss, Pettit, Dodge, & Bates, 2008). In summary, parenting practices are associated with youth conduct problems and substance use throughout childhood and adolescence; however, these associations vary in their magnitude, suggesting that other factors influence both parenting and youth behaviors. In the following section, I consider variables derived from different domains that may influence parenting behaviors selected by caregivers that can speak to issues of equifinality and multifinality for parenting and youth behavior problems and substance use.

Parenting across Development

The present study further expanded upon previous parenting research by examining profiles of parenting behaviors longitudinally across middle childhood and adolescence. Sroufe and Rutter (1984) suggested that to understand the links between early adaptation and subsequent functioning, a detailed appreciation of the developmental process itself is needed. As noted above, parenting is a highly heterogeneous construct, and strategies used during one developmental period may not apply or change in importance as children grow and move through additional developmental stages. Therefore, to fully understand the development and selection of parenting behaviors, attention must be paid to youth's normative developmental demands that potentially influence parents. Although parents influence their child's development throughout their lives, I focus on middle childhood and adolescence in the current dissertation because of the important cognitive, emotional, and social development that takes place during

these periods (as discussed below), as well as the lack of longitudinal research examining changes in parenting behavior across these time periods.

During middle to late childhood, or approximately between the ages of 5 and 12 years, children go through a number of cognitive, emotional, and social changes. Cognitive development during this period ushers in improvements in executive functioning abilities (Collins, Madsen, & Susman-Stillman, 2002; DeLoache, Miller, & Pierroutsakos, 1998), including more abstract, logical thinking and an ability to better understand themselves and the world around them (Collins et al., 2002). From a social and emotional perspective, significant shifts are seen in the social networks of children in this developmental period. Prior to the age of 5, a child's social network consists primarily of the immediate family. During middle and late childhood, children begin to see others as serving important social needs in their lives (Furman & Buhrmester, 1992), and the need for social support from others outside the family environment becomes apparent (Collins et al., 2002). As opportunities for time spent away from direct supervision increase, children learn to cooperate more and manage conflict within expanding social relationships (Ladd & Pettit, 2002; Parker & Gottman, 1989). Children during this developmental period show greater levels of social understanding, including the ability to accurately evaluate others (Mallory, Yarlas, Montvilo, & Sugarman, 1996) and see situations from others' perspectives (Crick & Dodge, 1994).

These myriad changes during middle childhood are coupled with important changes in parenting that can aid in their child's development. This period sees a shift from more distraction and physically assertive discipline strategies towards those that involve the removal of privileges, appeals to a child's sense of self-esteem, and tapping their sense of guilt and responsibility (Collins et al., 2002). As children's cognitive capacities and abstract thinking skills

develop, caregivers are able to shape their behaviors and use discipline strategies that can serve to instill desired morals and values among children. Additionally, this increase in cognitive capacity allows caregivers to shape behavior through the removal of privileges, such as taking away opportunities for their children to spend time with friends. The importance of clear communication in employing these discipline strategies is apparent, as parents' effectiveness in using disciplinary strategies depends on their ability to convey their expectations and demands (Grusec & Goodnow, 1994). As noted by Collins and colleagues (2002), effective parenting strategies during this period are marked by the use of "child-centered" control techniques that include clearly communicated demands, parental monitoring, effective discipline, and promotion of acceptance toward the child. The use of these strategies fosters positive growth among youth, including the development of self-esteem (Tafarodi, Wild, & Ho, 2010), competence (Cappa, Begle, Conger, Dumas, & Conger, 2011; Castro-Schilo et al., 2013), and appropriate emotional and behavioral regulation (Kliewer, Fearnow, & Miller, 1996).

As with middle childhood, adolescence is marked by a series of developmental, cognitive, emotional, and social changes that continue to usher a child towards adulthood. Cognitive changes bring about further growth in executive skills (Steinberg & Silk, 2002), including abstract thinking, cognitive control, inhibitory control, working memory, and attention (Geier, 2013; Luna et al., 2001; Miller & Cohen, 2001). Major changes in the social environment are also seen during adolescence. Although parents retain an important role, adolescents choose to spend increasingly less time with their families as peer relationships become more important (Buhrmester, 1998; Larson, Richards, Moneta, Holmbeck, & Duckett, 1996). Additionally, as adolescents spend more time outside of the family, they may begin to assert their increased independence when choosing friends with whom they spend time, as they are not as strongly

influenced by their parents' requests or demands regarding choice of friends (Steinberg & Silk, 2002). In addition, during this period, peers take on greater importance in the lives of adolescents in terms of emotional support (Gottman & Metteal, 1986), providing guidance and advice (Buhmester, 1996), and modeling attitudes and behaviors (Sussman et al., 1994). Adolescents also exhibit increased emotional autonomy during this time, gaining increased self-reliance and becoming less close with their parents, often resulting in an increase in negative interactions and conflict (Steinberg & Silk, 2002). However, for the majority of families, this conflict between adolescents and their caregivers is not the central feature of relationships during that developmental period (Steinberg & Silk, 2002).

Belsky's Process Model of Predictors of Parenting

Although previous research has clarified the types of parenting practices that help support positive youth development throughout middle childhood and adolescence, a variety of factors likely influence the use of specific parenting practices. More than three decades ago, Belsky (1984) proposed that caregivers' specific parenting behaviors were influenced by multiple factors, including their own individual characteristics (e.g., developmental history, personality characteristics, psychopathology); the characteristics of their child (e.g., temperament); and contextual variables (e.g., social support, stress). Although there are most likely differences in the predictive power of each of these three sources, risk associated with any single source of influence will not, in and of itself, lead to deficits in parenting because there may be a buffering effect of the other areas (Belsky, 1984). For example, although a caregiver may have a child who displays difficult temperamental traits (e.g., high reactivity, high negative emotionality) that increase risk for the parent's employing harsh parenting behaviors, other factors may promote the use of more positive parenting behaviors and buffer against the effects of these risk factors

(e.g., caregiver's sense of support from their partner, low levels of family stress). Belsky's (1984) model has long been utilized as a theoretical framework for research on predictors of parenting behaviors, with studies building on this model to include additional parent, child, and contextual factors not included in the original model (Kopala-Sibley, Zuroff, & Koestner, 2012; Laukkanen, Ojansuu, Tolvanen, Alatupa, & Aunola, 2014; Roskam & Meunier, 2012; Sellers, Black, Boris, Oberlander, & Myers, 2011; Smith, 2010; Van Bakel & Riksen-Walraven, 2002).

The current study builds on Belsky's (1984) process model in two important ways: examining predictors of *profiles* of parenting behaviors, rather than specific parenting behaviors in isolation, and investigating the influence of parent, child, and contextual factors on profiles of parenting behaviors longitudinally across middle childhood and adolescence. Although a number of studies have previously examined predictors of specific parenting behaviors (e.g., Huh, Tristan, Wade, & Stice, 2006; Kershaw et al., 2014; Laird, Pettit, Bates, & Dodge, 2003; Lansford et al., 2011; Smith, 2010), it remains unclear whether and to what extent profiles of parenting behaviors change over time (Luyckx et al., 2011). Given the changing developmental needs of children, and thus the need for parents to adjust their parenting behaviors to meet those needs, it is important to study these constructs in ways that allow for the longitudinal examination of predictors of parenting behavior profiles. Recent research has begun to take steps towards understanding factors that influence not only specific parenting practices, but profiles of parenting behaviors longitudinally. In the Cook et al. (2012) study discussed previously, the authors examined whether parenting classes differed in terms of maternal education, number of children, and poverty indicators. Specifically, mothers in the developmentally appropriate parenting group had higher levels of education, fewer children, and fewer indicators of poverty. The unsupportive parenting group had lower levels of education, more male children, and lower

incomes. Finally, the negative parenting group had lower levels of education, were more likely to be teenage mothers, and were more likely to receive public assistance and live in public housing. In a recent study by Roskam and Meunier (2012) based on Belsky's early model, the authors found that factors such as caregiver education level and caregiver self-efficacy were related to child rearing behaviors used over time; specifically, supportive (e.g., positive parenting, monitoring, promoting autonomy, establishing rules) and controlling (e.g., consistent discipline, harsh punishment, rewarding children's behavior, and ignoring) behaviors. These studies highlight the importance of continuing to gain an understanding of the multiple influences at work in the lives of caregivers.

Potential Factors that Affect Parenting Behaviors

To get a more complete understanding of influences on parenting, risk and protective factors from multiple domains must be examined. Bronfenbrenner's (1977, 1979) ecological systems theory highlights the importance of multiple ecological systems and the interconnectedness among these systems, as well as the influence each has on the development of individuals. As such, I present variables that could influence parenting behaviors in the sections that follow, specifically caregiver depressive symptoms, caregiver stress, child temperament, and family relationships. I selected these variables because each has received empirical support as a predictor of parenting behavior. Additionally, these factors may play an important role across multiple periods of child development, including middle childhood and adolescence. Finally, these factors are easily identifiable, which can allow them to be assessed for and included in case conceptualizations within a treatment setting. Treatment goals can be targeted towards modifying these factors in order to support positive changes among all family

members involved in the intervention and supporting caregivers in developing and adopting more positive parenting behaviors.

Caregiver Factors: Caregiver Depressive Symptoms and Caregiver Stress

One of the most commonly examined risk factors for problematic parenting behaviors is parental depression (e.g., Arellano, Harvey, & Thakar, 2012; Chi & Hinshaw, 2002; Goodman & Brumley, 1990; Lovejoy, 1991; Parent et al., 2014). As noted by Lovejoy, Graczyk, O'Hare, and Neuman (2000), observational studies have documented increased hostility, higher rates of negative interactions with their children, and greater impatience when guiding children's behavior among mothers who exhibit depression. Additionally, caregivers who are depressed show ineffective conflict resolution, deficits in modeling social skills and positive coping behaviors, and increases in angry, retaliatory behavior (Zahn-Waxler, Duggal, & Gruber, 2002). Although the strongest effects have been found among mothers, Harvey, Stoessel, and Herbert (2011) also note that paternal depression is related to a decrease in engagement with their children, increased father-child conflict, and more rejecting and less nurturing parenting. Harvey et al. (2011) provide evidence for the causal relation between depression and parenting through findings that adequate treatment of depression among parents leads to improvements in parenting. Although research has examined additional psychological disorders and the effects on parenting behaviors (e.g., Bogels & Van Melick, 2004; Eiden, Edwards, & Leonard, 2007; Harvey et al., 2011; Lang, Pelham, Atkeson, & Murphy, 1999; Woodruff-Borden, Morrow, Bourland, & Cambron, 2002), it is clear that depression has a profound role on influencing the types of parenting behaviors used by caregivers.

Stress generally is thought to involve an individual's emotional and behavioral response to an unpleasant event (Crnic & Low, 2002). Experiencing stress as a caregiver is a common

occurrence. However, the way that stress is defined and the sources of stress that may influence caregivers vary widely, including factors such as psychological distress, relationship distress (e.g., inter- and intra-familial), or more minor, day-to-day experiences associated with rearing children. Prior research has established a strong link between experiencing stress and parenting behaviors (e.g., Crnic & Low, 2002). Parents who report greater levels of stress are more demanding of their children, less responsive to their children's needs, and less involved in their child's life (Belsky et al., 1996; Crnic, Greenberg, Ragozin, Robinson, & Basham, 1983; Deater-Deckard, 1998; Deater-Deckard & Scarr, 1996; Ponnet et al., 2013). Experiencing stress also has been linked to lower levels of maternal positivity and less optimal parenting behavior (Belsky, Crnic, & Woodworth, 1995; Crnic et al., 2005). Given that stress is relatively stable over time (Östberg, Hagekull, & Hagelin, 2007), these adverse influences of stress on parenting behaviors are likely to be maintained. Additionally, stress is related to lower psychological well-being among caregivers (e.g., Deater-Deckard, 1998), which can negatively impact parenting behaviors. For example, increased stress has been related to higher levels of depression among caregivers (Manuel, Martinson, Bledsoe-Mansori, & Bellamy, 2012), which, as noted above, has been linked to angry and aggressive responses toward children and poor modeling of effective problem-solving behaviors (Zahn-Waxler et al., 2002).

Child Factor: Temperament

One child-specific factor that reliably has been shown to influence parenting choices is child temperament. Indeed, since the earliest studies examining the bidirectional associations between parent and child behaviors, child temperament has been implicated frequently in the selection of parenting behaviors (e.g., Bates, Pettit, & Dodge, 1995; Campbell, 1979; Maccoby, Snow, & Jacklin, 1984). Because of the extensive history of examining temperament among

children and parent-child relationship studies, this construct has been operationalized and broken down in a number of ways. However, a general definition of temperament refers to the specific behavioral and emotional reactions displayed by children in response to situations. These behaviors are seen as biologically rooted, present early in life, and relatively stable across time and situations (Bates, Pettit, Dodge, & Ridge, 1998). As noted by Putnam, Sanson, and Rothbart (2002) in their review of temperament and parenting, children seen as more adaptable, easy to soothe, or sociable may elicit warm and responsive parenting behaviors. Additionally, other researchers have found associations between positive affect and self-regulation among children and parental responsiveness, social interaction, and the use of rewards (e.g., Kyrios & Prior, 1990).

Conversely, children with difficult temperaments (e.g., irritable, demanding, or withdrawing from people or situations) may elicit more negative parenting behaviors. For example, difficult temperament has been associated with increased irritability from parents and more withdrawal from contact or stimulation with their children (Putnam et al., 2002). Additionally, children's negative emotionality has been linked to a host of negative parental characteristics, including harsh discipline tactics (Kochanska, Friesenborg, Lange, & Martel, 2004), hostility, and authoritarian parenting practices (Lee, Zhou, Eisenberg, & Wang, 2013; Zhou, Eisenberg, Wang, & Reiser, 2004). Behavioral characteristics related to temperamental traits also have been linked to parenting behaviors. Higher levels of child activity have been linked to strict discipline strategies (Katainen, Raikkonen, Keskivaara, & Keltikangas- Jarvinen, 1999), whereas child inhibition has been linked with greater parental overprotection and less encouragement of children's independence (Coplan, Prakash, O'Neil, & Armer, 2004; Rubin, Nelson, Hastings, & Asendorph, 1999). Thus, it is important to examine the relations between

child temperament and parenting behaviors, given that this factor may serve as a risk or protective factor with regard to parenting.

Contextual Factor: Family Environment/Relationships

Although parents play a critical role in child development, family relationships and the broader family environment are also important to consider in the prediction of parenting behaviors, as family factors can both protect against and confer risk for negative parenting practices (Hill, 1995). In recent years, strengthening family relationships to improve parenting behaviors has been the focus of both research and parenting interventions (Green et al., 2007). One meta-analysis of 66 studies suggested that mothers' perceptions of emotional and material support were positively associated with a number of indicators of these mothers' parenting (e.g., responsiveness to children's needs, frequency and quality of play, and the quality of verbal interactions; Anderson & Telleen, 1992). In addition, parenting profiles have been related to a number of family relationship factors. For example, Hill (1995) found that authoritarian parenting behaviors were positively correlated with control and negatively correlated with expressiveness and independence; authoritative parenting was positively correlated with cohesion, achievement, organization, and intellectual orientation, and negatively correlated with expressiveness; and permissive parenting was negatively correlated with conflict and positively correlated with expressiveness. Other research indicates that conflict between caregivers is positively associated with higher levels of harsh discipline, less parental acceptance of their children, and lower parental involvement in their children's lives (Buehler & Gerard, 2002; Krishnakumar & Buehler, 2000). Positive relationships between joint caregivers also have been found to disrupt the intergenerational transmission of negative parenting behaviors. For example, in a 22-year, 3-generation study of 500 individuals beginning in early adolescence, positive

relationship factors (e.g., warmth and positive communication) between participants and partners were associated with less harsh parenting towards the participant's child (Conger, Schofield, Neppl, & Merrick, 2013). These results point to the important role that family relationships and broader family environment factors may play in placing caregivers at risk for, or protecting against, the use of negative parenting practices.

Gaps in the Literature and the Current Study

Research examining predictors of parenting behaviors has failed to address a number of important factors. First, much parenting research to date has evaluated parents with young children. Although important, there is consequently much less known about factors related to specific parenting behaviors among caregivers with adolescents, which is important to understand given that factors associated with parenting behaviors during childhood likely differ from those in adolescence (Greenley, Holmbeck, & Rose, 2006). Second, a large number of studies examining factors related to parenting behaviors have only done so cross-sectionally, which precludes consideration of whether and to what extent parenting behaviors remain stable across time as children move through different developmental periods. As discussed previously and in more detail below, it is important to consider parenting longitudinally, as caregivers' parenting behaviors often must change to meet the developmental needs of their children and thus there may be both quantitative (e.g., frequency) and qualitative (e.g., type) changes in parenting over time. Similarly, there is a dearth of literature investigating differing levels of parent, child, and contextual factors among individuals who exhibit different profiles of parenting behaviors during different developmental periods. Longitudinal studies are needed to determine which factors may be associated with distinct parenting profiles at specific (e.g., childhood) or broader points across development. To address these gaps, the current dissertation

examined stability and change in parenting behaviors across childhood and adolescence. Additionally, the current dissertation investigated potential differences in levels of child temperament, caregiver depression symptoms, caregiver stress, family relationships, conduct problems, and substance use among subgroups of parents who evidence parenting behaviors that may differ in terms of frequency and quality. To address these gaps, the current study utilized a person-centered approach to identify groups of parents based on their levels of specific parenting behaviors (i.e., warmth, consistent discipline, communication, supervision). Additionally, longitudinal patterns of stability and/or change in parenting behaviors were examined. I also investigated whether and to what extent subgroups of parents differed with regard to child externalizing problems and substance use, as well as child temperament, caregiver depression, caregiver stress, and family relationships, as well as examined whether child temperament, caregiver depression, caregiver stress, and/or family environment predicted stability within and transitions among classes over time. Data were collected at multiple developmentally relevant time points, including ages 10-12 (Time 1), 12-14 (Time 2), and 16 (Time 3). Specific aims and hypotheses of the current study are outlined below.

Aim 1. Use a person-centered approach to identify groups of caregivers based on frequency and type of specific parenting behaviors.

Although person-centered approaches (e.g., LCA, cluster analysis) have been widely used in a variety of literatures, recent research has begun employing these methods to identify groups of parents based on shared characteristics (Cook et al., 2012). These approaches have allowed for the examination of additional parenting behaviors beyond, but related to, Baumrind's dimensions of support and control (Hirsh-Pasek & Burchinal, 2006; McGroder, 2000). To build upon this growing body of person-centered approaches to examining parenting, the first aim of the current

study was to identify groups of caregivers defined by the types and levels of parenting behaviors used, specifically (a) parental warmth, (b) consistent discipline, (c) parent-child communication, and (d) parental supervision across three time points. This first aim sought to extend this person-centered approach to examining parenting by identifying classes of parents based on parenting behaviors at multiple developmental points that span middle childhood and adolescence using a broader range of factors than those that are typically considered (e.g., support and control; Baumrind, 1971).

Hypothesis 1. Consistent with previous research (Baumrind, 1971; Bowers et al., 2014; Greening, Stoppelbein, & Luebbe, 2010; Luyckx et al., 2011; Roskam & Meunier, 2012), I hypothesized that I would identify at least three groups of caregivers at each time point based on their use of specific parenting practices at each of the three time points (see Figure 1). Specifically, I expected to identify groups of caregivers exhibiting (a) high levels of parental warmth, consistent discipline, greater parental monitoring of their children's behavior, and high levels of positive communication with their children (i.e., "Positive Parenting"); (b) low levels of parental warmth, inconsistent discipline, low levels of parental monitoring of their children's behavior, and low levels of caregiver-child communication (i.e., "Poor Parenting"); and (c) inconsistent use of different parenting practices (i.e., "Inconsistent Parenting'). Although these groups were expected to emerge at each time point, the levels of behaviors was expected to change over time. Specifically, I expected the greatest amount of change to occur with regard to caregiver-child communication and caregiver monitoring over time. I hypothesized a decrease in caregiver monitoring across each time point within each parenting class because of decreases in the amount of time youth spend with parents and increases in time outside of the home with peers (Frick, Christian, & Wooten, 1999; Laird et al., 2003), I also predicted a decrease in

parent-child communication across Time 1 to Time 2, and Time 2 to Time 3. As children move towards greater autonomy during adolescence, children may wish to withhold information from their caregivers about the specific behaviors in which they are engaging (Steinberg & Silverberg, 1986). As such, youth may see this decrease in openness with their caregivers as a way to establish their autonomy (Petronio, 2002). Prior research has supported this notion, revealing a trend towards a decreased willingness of adolescents to share information with their parents compared to younger children (Keijsers, Frijns, Branje, & Meeus, 2009; Keijsers & Poulin, 2013).

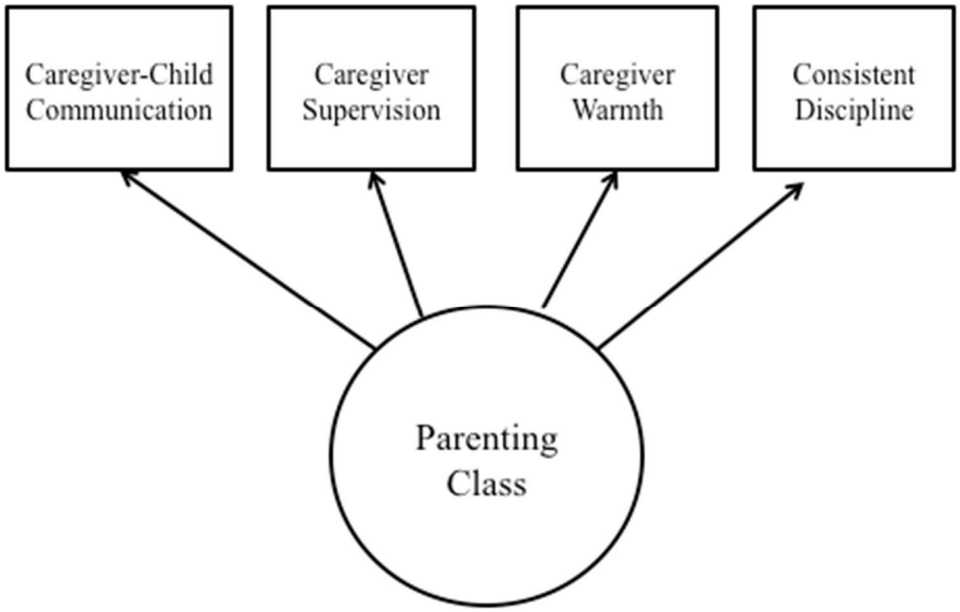

Figure 1. Latent class model of parenting behaviors at Time 1 (child ages 10-12), Time 2 (child ages 12-14), and Time 3 (child age 16).

Aim 2. To explore whether and to what extent parenting classes differ cross-sectionally in their levels of child temperament and caregiver depressive symptoms at Times 1 and 3, caregiver stress and overall family relationships at Times 1 and 2, and youth behavior problems and substance use at Times 1, 2, and 3.

Hypothesis 2a. At each time point for which these variables were assessed, I expected that there would be significant differences in child temperament, caregiver depressive symptoms, caregiver stress, and overall family relationships among parenting classes. However, these differences among classes were expected to vary depending on the age of the child. At Time 1 (ages 10-12 years), it was hypothesized that the highest levels of difficult child temperament (i.e., more difficult mood), higher levels of caregiver depressive symptoms, increased caregiver stress, and poor family relationships would be found within the Poor Parenting class, whereas easier child temperament, lower levels of caregiver depressive symptoms, decreased levels of caregiver stress, and better family relationships would be present within the Positive Parenting class. Although I expected that higher levels of difficult temperament, caregiver depressive symptoms, caregiver stress, and low caregiver warmth would be seen among the Inconsistent Parenting class compared to the Positive Parenting class, I did not expect levels of these variables to be as high among parents within the Poor Parenting class (Poor>Inconsistent>Positive). This hypothesis is based on the fact that children may not have reached an age where parents would feel comfortable disengaging from their child when faced with increasing levels of stress from other sources.

However, it was hypothesized that increased caregiver stress and poor family relationships at Time 2 would be seen within each of the "negative" parenting classes, namely, the Inconsistent and Poor Parenting classes, with the main difference among these classes being

the quality of the family relationship. Specifically, it was expected that the Inconsistent Parenting class would have better family relationships compared to the Poor Parenting class, as well as comparably high levels of caregiver stress. These changes were expected as parents may monitor their children's behaviors less frequently as youth move into adolescence than during childhood, perhaps reflecting increased expectations for autonomy during adolescence. At Time 2, it was expected that the Positive Parenting class would be characterized by lower levels of caregiver stress and better family relationships compared to the other two classes. Finally, at Time 3, I expected that the Positive Parenting class would be characterized by children with lower levels of difficult temperament compared to the other two classes. At this time point, I also expected the Poor Parenting and Inconsistent Parenting classes to be characterized by higher levels of caregiver depressive symptoms, compared to the Positive Parenting class.

Hypothesis 2b. At each time point, parenting classes were expected to differ in terms of youth externalizing behaviors and substance use. Specifically, I hypothesized that youth externalizing problems would be lowest in the Positive Parenting class compared to the other classes across time points. With regard to substance use, it was hypothesized that youth in the Positive Parenting class would have the lowest rates of substance use at each time point even with generally low ranges of substance use among preadolescents (Van Ryzin, Fosco, & Dishion, 2012), but that at Times 2 and 3, the Inconsistent Parenting class would have lower rates of substance use compared to the Poor Parenting class (e.g., Positive Parenting < Inconsistent Parenting < Poor Parenting at Times 2 and 3)

Aim 3. To examine stability of class membership for caregiver groups across three time points.

As reviewed previously, as children move through middle childhood and adolescence, it is crucial that caregivers employ strategies that aid in the positive development of their children at these different time periods. Although many studies have examined parenting behaviors at different developmental time points using cross-sectional designs, more research is needed to clarify changes and stability in parenting profiles and associated parenting practices. However, research suggests that as youth move into and through adolescence, changes in parenting behaviors related to caregiver communication (for a review, see Laursen & Collins, 2004) and caregiver monitoring are expected (Laird et al., 2003; Pettit, Keiley, Laird, Bates, & Dodge, 2007).

Hypothesis 3. I hypothesized that there would be stability within each class of parenting behaviors from Time 1 to Time 2 and Time 2 to Time 3, with the highest level of stability among caregivers in the Positive Parenting class, compared to the other parenting classes. With regard to change in parenting class membership, I expected changes in parenting classes that would be consistent with youth's social and emotional development during these periods. Specifically, as youth begin spending more time with peers and less time engaging in activities in the home, as well as receive more independence in their decision making, caregivers may monitor their child's behavior at lower levels and become less involved in decision-making processes with their child. In contrast, changes in the amount of time with peers may lead some parents to increase their levels of supervision as compared to when their children were younger and they monitored their behavior at lower rates. As such, I hypothesized that the proportion of parents falling in the Inconsistent Parenting class would increase from Time 1 to Time 2 and Time 2 to Time 3.

Aim 4. Examine child temperament, caregiver stress, caregiver depression, and family environment as predictors of transitions among parenting classes.

Hypothesis 4. Correlates of parenting behaviors that may put caregivers at risk for employing more negative strategies were examined by investigating predictors of transitions and stability among classes in the LTA (Figure 2). I hypothesized that difficult child temperament, increased parental stress levels, higher levels of maternal depressive symptoms, and poorer family relationships and family environment would each predict transitions into classes that were characterized by higher levels of poor parenting behaviors. This prediction was especially expected among parents transitioning from the Positive Parenting class to the Poor Parenting class, as this class is characterized by poor caregiver-child communication, less caregiver supervision, inconsistent discipline, and/or less caregiver warmth. Additionally, I hypothesized that difficult temperament, higher parental stress, increased depressive symptoms, and poor family relationships would characterize parents who consistently fell within more negative parenting classes, specifically, those who remained in the Inconsistent and Poor Parenting classes across time.

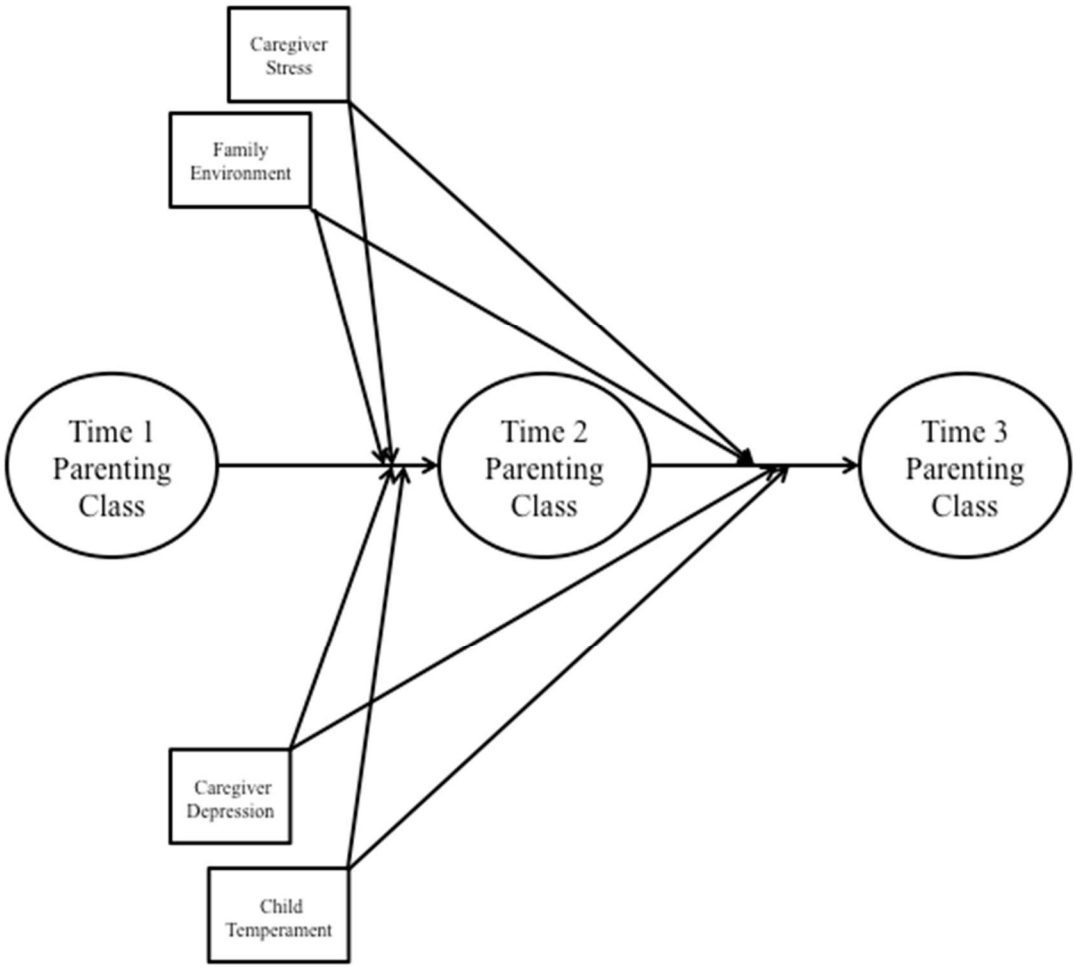

Figure 2. Latent transition model of parenting behaviors at Time 1 (child ages 10-12), Time 2 (child ages 12-14), and Time 3 (child age 16), with caregiver stress, family environment, caregiver depression, and child temperament as predictors of stability within and transitions between class membership between time points.

CHAPTER 2

METHOD

Participants

Participants in the current study were enrolled in a National Institute of Drug Abuse (NIDA)-funded longitudinal study conducted at the Center for Education and Drug Abuse Research (CEDAR) at the University of Pittsburgh. The CEDAR project aimed to elucidate the etiology of substance use disorders using a longitudinal research design. Recruitment took place through multiple sources, including substance use and other psychiatric treatment programs, social service agencies, radio and newspaper advertisements, and other community-based approaches. Fathers with a child aged 10-12 years old (index child) were eligible for enrollment based on specific inclusion and exclusion criteria, described below. Index children were classified into one of three groups based on their individual level of risk for substance use disorder (SUD): (a) offspring of biological fathers with a history of SUD, based on *DSM-III-R* criteria (American Psychiatric Association [APA], 1987); (b) offspring of biological fathers with a history of a psychiatric disorder not including SUD; or (c) offspring of biological fathers with no lifetime history of psychiatric disorders or SUD.

Participant data were collected over a 20-year period, beginning in 1990. By 2009, a total of 775 families had been recruited. Recruitment and baseline assessment were completed when index children were between the ages of 10-12 years (Time 1). The current dissertation used data collected from index children and their maternal caregivers at Time 1 (N=775, 72% male), Time 2 (12-14 years old; n=651; 71% male) and Time 3 (16 years old; n=618, 73% male). The CEDAR sample is largely Caucasian (78%; 18% African-American, 4% other ethnicities).

Female index children were recruited later than males because of changes in NIH gender equity regulations following the start of the CEDAR project. Exclusion criteria included a paternal history of neurological disorders, schizophrenia, or uncorrectable sensory incapacity; or a history of neurological injury requiring hospitalization, chronic physical disability, uncorrectable sensory incapacity, psychosis, or an IQ less than 70 in the index child. More extensive recruitment source information and procedures, as well as inclusionary and exclusionary criteria, are described in detail elsewhere (Clark et al., 1997; Tarter & Vanyukov, 2001).

Procedure

The Institutional Review Board at the University of Pittsburgh has continuously approved the study since it began. All participants provided informed consent or assent, with parental consent provided for all participants under age 18. Of all fathers who met eligibility criteria, 87% consented to participate. To ensure confidentiality, a Certificate of Confidentiality was provided by NIDA. Parenting behaviors were collected via youth report at Times 1, 2, and 3; youth temperament was assessed at Times 1 and 3; and youth conduct problems were assessed at Times 1 and 2 via parent report and Time 3 via self-report. Youth substance use was reported by youth at Times 1, 2, and 3. Parents self-reported on their individual stress levels and family environment/warmth at Times 1 and 2. Each measure is presented in more detail below.

Measures

Parenting behaviors. Information on all parenting behaviors was collected using child reports at Times 1, 2, and 3.

Caregiver-youth communication. The Revised Parent-Adolescent Communication Form (RPACF; Loeber, Farrington, Stouthamer-Loeber, & VanKammen, 1998) was used to assess the frequency with which youth communicated about their emotions, problems, and disagreements

with their maternal caregivers (38 items). This measure has been shown to have good internal consistency (e.g., Ammerman, Kolko, Kirisci, Blackson, & Dawes, 1999), with scores associated with the development of child prosocial values (Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000) and child callousness (Pardini & Loeber, 2008). Within the current sample, this measure showed very good internal consistency at each time point (αs = .92, .89, and .90, respectively). Examples of questions include, "Can you discuss your beliefs with your mother without feeling afraid or embarrassed?" and "Do you find it easy to discuss problems with your mother?" Youth indicated how much they agreed with each statement using a 3-point Likert scale (0 = *almost never*, 1 = *sometimes*, 2 = *always*). Relevant items were reverse scored and items were summed so that higher total scores indicated poorer communication between youth and their caregivers.

Caregiver supervision. Caregiver supervision of their child's behavior was assessed using four items administered to youth at each time point from the Supervision Involvement Scale (Loeber et al., 1998). Previous studies using this measure determined that it has acceptable internal consistency and was related to the development of antisocial behavior among youth (Lahey, Gordon, Loeber, Stouthamer-Loeber, & Farrington, 1999; Loeber et al., 1998, 2005). Adequate internal consistency was observed in the current sample at Times 1-3 (αs = .65, .61, and .66, respectively). Youth were asked to assess their maternal caregivers' knowledge of their behavior using a 3-point scale (1 = *almost never*, 2 = *sometimes*, 3 = *often*). An example of an item on this measure is, "Do your parent(s) know who you are with when you are away from home?" All items were reverse-scored, and ratings were then summed with higher scores indicating lower levels of caregiver supervision.

Caregiver warmth. Maternal caregiver warmth was measured using six questions from the Child's Relationship with Caretaker questionnaire (Loeber et al., 1998). This youth self-report measure was designed to assess both positive and negative aspects of the parent-child relationship. Prior research using this questionnaire has established adequate construct and convergent validity, reliability, and internal consistency (Keijsers, Loeber, Branje, & Meeus, 2012; Stouthamer-Loeber, Loeber, Wei, Farrington, & Wikstrom, 2002). Questions used for the current subscale were chosen based on their focus on rating affective feelings between youth and their caregivers during the previous six months. Participants responded using a three-point Likert scale (0 = *almost never*, 1 = *sometimes*, 2 = *often*). Eight items were initially identified, with two items excluded following an examination of item-total correlation values. The resulting subscale showed adequate internal consistency at each time point (αs = .66, .74, and .73, respectively). An example of an item on this subscale is, "How often have you felt that your mother loved you?" Reverse scoring was done for relevant items, and items were summed to create a total score, with higher scores indicating less perceived caregiver warmth.

Consistent discipline. Youth reported on their maternal caregiver's tendency to be inconsistent and lack persistence when disciplining them using the Discipline Scale (Loeber et al., 1998). The four-item Nonpersistent Discipline Scale uses a 3-point scale (1 = *almost never*, 2 = *sometimes*, 3 = *often*) to determine the frequency at which caregivers employ inconsistent discipline strategies (e.g., "If your mother warns you that you will get punished if you do not stop doing something, does she do what she says and punish you?"). Items are reverse scored prior to summing the ratings, such that higher scores indicate nonpersistent discipline. This measure has been shown to have adequate internal consistency in previous studies (e.g., Ammerman et al., 1999; Jacob, Moser, Windle, Loeber, & Stouthamer-Loeber, 2000), as well as

in the current sample at each time point (αs = .75, .75, and .81, respectively). Previous studies have found associations between discipline consistency and child callousness (Pardini & Loeber, 2008), suggesting concurrent validity for the current scale.

Child temperament. Temperament was self-reported by participants and their maternal caregivers at Times 1 and 3 using the Revised Dimensions of Temperament Survey (DOTS-R; Windle, 1992), a 54-item measure that assesses various aspects of temperament. For the current dissertation, the Mood Quality subscale (7 items) was used as an index of temperament. Participants rated items on a four-point scale from 1 (*usually false)* to 4 (*usually true*), with higher scores indicating higher levels of temperamental positive mood and lower scores indicating higher levels of negative mood (Tarter et al., 2003). The Mood Quality subscale has been used as an index of child temperament in prior research in the present sample (Giancola, 2000). Prior studies have determined that the DOTS-R is a reliable and valid measure of child temperament (Carson, Council, & Volk, 1989; Windle, 1991).

Caregiver depression. Maternal depression was assessed using an expanded version of the Structured Clinical Interview for *DSM-III-R* (SCID; Spitzer, Williams, & Gibbons, 1990). Because data collection began prior to the publication of the fourth edition of the *DSM*, *DSM-III-R* criteria were used to assess for symptoms of depression. The SCID is a structured clinical interview designed to assess 33 of the more frequently diagnosed *DSM-III-R* Axis I disorders (Spitzer, Williams, Gibbon, & First, 1992). For the current study, caregivers meeting diagnostic criteria for major depressive disorder were coded as "1," and those not meeting criteria were given a code of "0." The SCID has demonstrated good interrater reliability (Segal, Hersen, & Van Hasselt, 1994; Williams, Gibbon, First, & Spitzer; 1992) and adequate test-retest reliability (Williams et al., 1992).

Caregiver stress. Maternal caregivers' psychosocial stress level was assessed using the 14-item Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). The PSS measures individuals' perceptions of their own stress level, including how unpredictable, uncontrollable, and overloaded respondents find their lives during the previous month. This scale includes items such as, "Have you been upset because of something that happened unexpectedly?" and "Have you felt confident about your ability to handle personal problems?" Psychometric data collected in three samples indicated that the PSS is a valid and reliable measure (Cohen et al., 1983). Caregivers rated their current stress levels using a 3-point scale (1 = *almost never*, 2 = *sometimes*, 3 = *often*). Items were summed to create a total score, with higher scores indicative of more stress.

Family environment. The Family Environment Scale (FES; Moos & Moos, 1994) was used to measure family environment. The measure consists of 90 true/false items that assess the social and environmental characteristics of families. Ten subscales can be derived that are associated with three constructs. For the current study, subscales associated with the Relationship construct were used: Cohesion (9 items; the degree of commitment, help, and support family members provide one another); Expressiveness (9 items; the extent to which family members are encouraged to act openly and to express their feelings directly); and Conflict (9 items; the amount of openly expressed anger, aggression, and conflict among family members). The Relationship Index score is determined by first reverse-scoring the items from the Conflict subscale, then summing scores from the 27 items across the three subscales. The FES is a widely-used measure of family environment, and has been shown to have adequate internal consistency, reliability, and validity across racial and socioeconomic groups (Dancy & Handal, 1984; Moos, 1990; Wolff & Munley, 2012).

Youth conduct problems. At Times 1 and 2, child conduct problems were assessed using the Externalizing Problems composite scale of the parent-report Child Behavior Checklist (CBCL; Achenbach, 1991a; Achenbach & Rescorla, 2001). At Time 3, the Externalizing Problems composite scale of the Youth Self Report (YSR; Achenbach, 1991b; Achenbach & Rescorla, 2001) was used to assess conduct problems. These measures are widely used, empirically derived, broad-band behavioral rating scales for symptoms of internalizing and externalizing psychopathology (Lengua, Sadowski, Friedrich, & Fisher, 2001). Each behavior/symptom was rated on a three-point scale (0 = *not true*, 1 = *somewhat/sometimes true*, 2 = *very/often true*) indicating the frequency of each behavior exhibited by the child during the previous six months. The composite measure of externalizing symptoms is comprised of the Delinquency (e.g., breaking the rules at home, school, or elsewhere; vandalism; stealing) and Aggression (e.g., cruelty, bullying, or meanness to others; fighting with others; hot-tempered) subscales.

Youth substance use. Youth reported on their substance use at Times 1, 2, and 3 using the self-report Drug Use Screening Inventory – Revised (DUSI-R; Tarter, Mezzich, Kirisci, & Kaczynski, 1994). This measure assesses the frequency of use of 19 different drugs, including alcohol; tobacco; marijuana; stimulants (e.g., amphetamines, cocaine); sedatives (e.g., heroin, opiates, methadone, prescription pain killer pills, barbiturates); and hallucinogens/other (e.g., LSD, ecstasy, PCP, glue, anabolic steroids). Youth rated their monthly frequency of use of each of the 19 substances from 0 (*0 times*) to 4 (*more than 20 times*). Among the sample examined in the current dissertation, scores from the DUSI-R reliably identify those at risk for both substance use disorders and aggressive behavior problems (Kirisci, Tarter, Mezzich, & Reynolds, 2008).

Statistical Analyses

Preliminary analyses, including descriptive statistics and correlation matrices, were conducted to determine if there were any problems with distributions (e.g., outliers, skewness, kurtosis) or multicollinearity among the data, using SPSS. The remaining analyses were conducted using Mplus version 7.11 (Muthén & Muthén, 1998-2014). Although the Loeber et. al. (1998) parenting measures are typically scored such that lower scores are indicative of better parenting, these measures were reverse scored to aid in interpretation of the Aim 1 results. Additionally, as the range of possible raw scores on these parenting scales was different across measures, raw scores were standardized to z-scores to facilitate labeling and interpretation of classes.

Addressing Missingness

To address missing data, Mplus uses Full-Information Maximum Likelihood (FIML) estimation, which conducts parameter estimation and estimates standard errors all in one step using all available data (Graham, 2009). Traditional strategies used to account for missing data (e.g., listwise or pairwise deletion, mean imputation) may result in biased analyses (Bodner, 2008; Graham, 2009; Little & Rubin, 2002). Although mean- or regression-based imputation estimates values for missing data, FIML fits the covariance structure model directly to the available, observed raw data for each participant but does not impute missing data (Enders, 2001). In FIML, the missing data are assumed to be either missing completely at random (MCAR) or missing at random (MAR), the latter of which more likely characterizes the present data.

Aim 1. Identify subgroups of caregivers with different profiles of parenting behaviors used.

Latent class analysis. To address the first goal, latent class analysis (LCA) was conducted. LCA (Muthén & Muthén, 2000) is a person-centered data reduction procedure that empirically derives groups of individuals, or latent categorical classes, based on the aggregation of observed categorical and/or continuous variables. Each latent class (e.g., a parenting class characterized by high levels of positive parenting practices) describes the relations among the observed items (i.e., levels of caregiver warmth, caregiver-child communication, consistent discipline, and caregiver supervision). This method of empirically deriving latent classes of observed items is considered to be more effective than using traditional classification using cut-off scores (Nylund, Bellmore, Nishina, & Graham, 2007), as using cut-off scores could lead to classification errors reflecting false positives or false negatives, reduced ability to predict differences in outcomes, challenges identifying and generalizing rates of specific behaviors, and a decrease in validity in identifying groups of parents who may benefit from intervention efforts. Thus, LCA was an appropriate approach for identifying profiles of caregiver behaviors based on the specific parenting behaviors used.

LCA is used to identify the best fitting model for the observed data based on both statistical indices and conceptual/practical implications (Nylund et al., 2007), with the goal of finding the smallest number of classes that could adequately describe associations among observed variables. An unconditional 1-class model is first specified, consisting of the mean levels of each parenting behavior. An increasing number of classes is then specified and compared to the model with one fewer class until the models no longer converge and/or are no longer conceptually sound.

Determining Model Fit. Given the lack of a single "gold standard" statistical fit index for LCA, a combination of indices were used to assess model fit and determine the optimal number of classes, based on recommendations by Nylund and colleagues (2007). Specifically, the Bayesian Information Criterion (BIC; Schwartz, 1978), sample-size adjusted BIC (AIBC; Sclove, 1987), Akaike Information Criterion (AIC; Akaike, 1987), and Bootstrap Likelihood Ratio Test (BLRT; McLachlan & Peel, 2000; Nylund et al., 2007) were used to assess model fit. For the BIC, ABIC, and AIC, lower values correspond to better fitting models. Because the BIC penalizes small class size or a large number of parameters, this index generally identifies the best fitting model as one with fewer parameters and larger class size. Monte Carlo simulations indicate that the most reliable indicators of model fit in LCA are the BIC and the BLRT (Nylund et al., 2007). The BLRT estimates log likelihood differences, and compares the fit of a model with *k* classes to a model with *k*-1 classes to determine if model fit is significantly improved with an additional class. Additional strategies for examining models include consideration of entropy, which indicates the distinguishability among latent classes and the precision with which participants are placed into classes (Masyn, Henderson, & Greenbaum, 2010). Entropy values closer to one indicate clearer delineation of classes (Celeux & Soromenho, 1996), suggesting that classes are distinct from one another. Additionally, class size should be considered when the smallest class is not conceptually meaningful and/or does not represent a significant proportion of the sample (e.g., < 5%), as a very small class suggests over-fitting of the data, with a reduced likelihood of replication in future studies. Finally, model selection should be based on the conceptual model and theories underpinning the analyses, the interpretability of the number of classes, and practical considerations.

Aim 2. To explore whether and to what extent parenting classes differ in their levels of child temperament, caregiver depression, caregiver stress, family environment, and youth behavior problems and substance use cross-sectionally at each time point.

Tests of equality of means across the identified latent classes were conducted to determine whether and to what extent classes differed regarding (a) child temperament at Times 1 and 3; (b) caregiver depression at Times 1 and 3; (c) caregiver stress at Times 1 and 2; (d) family environment at Times 1 and 2; (e) youth externalizing behavior problems at Times 1, 2, and 3; and (f) youth substance use at Times 1, 2, and 3. Additional auxiliary analyses examined whether classes differed on demographic variables (e.g., paternal diagnostic status, child age, sex, SES, and highest grade completed). For continuous study variables (i.e., child age, SES, highest grade completed, child temperament, caregiver stress, family environment, and youth behavior problems), χ^2 statistics for omnibus tests, along with pairwise comparisons across latent classes, were conducted. These pairwise comparisons were interpreted only if the omnibus test was significant. Multinomial logistic regression was used to determine differences among categorical study variables (i.e., paternal diagnostic status, child sex, caregiver depression, and youth substance use). All analyses were considered significant if $p < .05$.

Aim 3. Examine stability of class membership for parenting groups across late childhood and adolescence.

Latent transition analysis (LTA; Clogg, 1995) was used to address the third aim (Figure 2). LTA examines changes, or transitions, in latent categorical classes of individuals over time (e.g., Nylund, 2007). When conducting LTA, information from the LCA is used as a measurement model for identifying classes at each time point. LTA uses autoregressive modeling as a structural model to describe transitions among classes over time. These models

use conditional probabilities to describe change among categorical outcomes across time. The relation between two categorical outcomes is specified as a multinomial logistic regression, where the outcome at time *t* is regressed on the variable *t-1*.

As noted, when conducting the LTA, the best-fitting LCA models derived from Aim 1 were used as the measurement models (Nylund, 2007). Measurement invariance was examined to determine whether parameters for each class were equal or varied across time, and models were constrained or free to vary accordingly. Depending on the type and number of classes observed at each time point from the LCA, measurement invariance was assessed using likelihood ratio tests prior to longitudinal modeling of transition patterns. Autoregressive models were then conducted using the measurement models from the LCAs to assess transitions or continuity in class membership over time. After individuals were assigned to a class at each time point based on the LCA, cross-tabulation of stability and transitions among classes were examined as preliminary information. The autoregressive models were then used to identify stability in class membership and transitions across each time point (i.e., changes in parenting classes from Time 1 to Time 2, and from Time 2 to Time 3; Figure 2).

Aim 4. Examine child temperament, caregiver stress, caregiver depressive symptoms, and family environment as predictors of stability and transitions among parenting classes.

In order to determine if transitions among and stability within classes were influenced by child temperament, caregiver stress, caregiver depression, or family relationships, two LTA models were fit and a chi-square difference test using the log-likelihood was conducted to compare the two models. In the first model, the moderating variables were set so that their value was equal to zero, allowing for no effect of the proposed moderating variable across all transitions from one time point to the next. This model served as the comparison model. In the

second model, paths from the moderators were unconstrained, allowing the variables to fully influence transitions among classes. A chi-square test was conducted to determine whether the unconstrained model was a better fit to the data than the constrained model, thus indicating significant effects of the moderating variable on class transitions from one time point to the next.

CHAPTER 3

RESULTS

Descriptive Statistics

As seen in Table 1, with some exceptions, parenting variables were correlated in expected directions both concurrently and longitudinally. Additionally, correlations indicated continuity in parenting behaviors over time. For example, parent-child communication at Time 1 was positively correlated with communication at Times 2 and 3, as well as consistent discipline at Time 1, and supervision and caregiver warmth at each time point. Table 1 also displays correlations among caregiver depression, caregiver stress, child temperament, family relationships, and parenting practices. Relative to the other predictor variables considered, caregiver depression and warmth were most frequently associated with parenting behaviors, particularly parent-child communication, caregiver supervision, and caregiver warmth. Consistent discipline was not correlated with predictor variables with one exception (i.e., caregiver stress at Time 1 was negatively correlated with consistent discipline at Time 3). Table 2 displays bivariate correlations among parenting practices and youth externalizing behaviors problems and substance use. Parenting behaviors also were correlated in the expected direction with youth outcomes (Table 2). Parenting behaviors were more frequently correlated with youth externalizing problems concurrently, compared to longitudinally.

Table 1

Bivariate Correlations among Parenting Behaviors and Predictor Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. T1 Temperament	-												
2. T3 Temperament	.28***	-											
3. T1 Caregiver Depression	-.04	-.001	-										
4. T3 Caregiver Depression	-.11*	-.17***	.30***	-									
5. T1 Caregiver Stress	.02	.07	.06	.01	-								
6. T2 Caregiver Stress	.01	.04	.04	.03	.25***	-							
7. T1 Family Environment	.08*	.07	-.02	-.08*	.08*	.09*	-						
8. T2 Family Environment	.06	.12**	-.07	-.11*	.08	.04	.45***	-					
9. T1 Communication	-.23***	-.18***	.12**	.04	-.06	-.06	-.10**	-.10*	-				
10. T2 Communication	-.20***	-.26***	.08	.07	-.04	-.01	-.09*	-.10*	.53***	-			
11. T3 Communication	-.11**	-.26***	.11**	.09*	-.07	-.01	-.03	-.08	.41***	.53***	-		
12. T1 Consistent Discipline	-.07	-.04	.02	.05	.03	-.01	-.003	.08	.20***	.11**	.08	-	
13. T2 Consistent Discipline	.05	-.07	.03	.06	.004	-.07	.03	.08	.03	.09*	.04	.28***	-
14. T3 Consistent Discipline	.01	-.06	.06	.06	-.08*	-.03	-.01	.01	.06	.12**	.16***	.32***	.30***
15. T1 Supervision	-.24***	-.15***	.04	.04*	.03	.07	-.09*	-.06	.32***	.27***	.21***	.09*	.04
16. T2 Supervision	-.18***	-.13**	.04	.11*	.02	-.02	-.04	-.05	.23***	.33***	.25***	.19***	.11**
17. T3 Supervision	-.14**	-.27***	.08*	.12**	-.10*	-.08	.03	-.09*	.22***	.30***	.39***	.11**	.07
18. T1 Warmth	-.21***	-.16***	.13***	.13**	-.03	-.04	-.05	-.06	.62***	.39***	.27***	.12**	.07
19. T2 Warmth	-.16***	-.20***	.11**	.08	.04	-.01	-.03	-.03	.39***	.68***	.37***	.08*	.08*

20. T3 Warmth	-.07	-.24***	.13**	.08	-.01	.05	.00	-.07	.21***	.33***	.63***	.03	.10*
M	23.56	23.93	.34	.27	29.95	30.25	17.04	16.69	19.69	19.64	21.48	12.72	15.16
SD	3.75	3.93	.47	.45	2.67	2.55	2.77	2.83	9.83	10.40	10.20	3.04	2.41

Table 1, continued

Bivariate Correlations among Parenting Behaviors and Predictor Variables

Variable	14	15	16	17	18	19	20
14. T3 Consistent Discipline	-						
15. T1 Supervision	.04	-					
16. T2 Supervision	.08	.27***	-				
17. T3 Supervision	.27***	.21***	.39***	-			
18. T1 Warmth	.10*	.20***	.15***	.23***	-		
19. T2 Warmth	.12**	.13**	.23***	.21***	.42***	-	
20. T3 Warmth	.17***	.17***	.13**	.31***	.28***	.39***	-
M	14.39	5.31	5.08	5.54	2.61	2.76	3.33
SD	3.52	1.58	1.36	1.64	2.04	2.17	2.21

Note. T1 = Time 1 (ages 10-12), T2 = Time 2 (ages 12-14), T3 = Time 3 (age 16).
* $p < .05$; ** $p < .01$, *** $p < .001$.

Table 2

Bivariate Correlations among Parenting Behaviors and Youth Externalizing Behaviors and Substance Use

Variable	T1 Ext.	T2 Ext.	T3 Ext.	T1 Alc.	T2 Alc.	T3 Alc.	T1 Mar.	T2 Mar.	T3 Mar.	T1 Hard	T2 Hard	T3 Hard
1. T1 Communication	.26***	.24***	.21***	.17***	.08*	.09*	.08*	.16***	.18***	-.01	.10**	.12**
2. T2 Communication	.26***	.29***	.30***	.12**	.18***	.14**	.03	.19***	.27***	.02	.13**	.15***
3. T3 Communication	.20***	.24***	.36***	.05	.05	.12**	.05	.09*	.23***	-.02	-.02	.11**
4. T1 Consistent Discipline	.09*	.06	.11**	.12**	.07	.08*	.04	.07	.09*	.04	.05	.13**
5. T2 Consistent Discipline	.05	.04	.16***	.11**	.10*	.07	.05	.07	.10*	.05	.01	.04
6. T3 Consistent Discipline	.09*	.11*	.25***	.07	.12**	.22***	.09*	.15**	.17***	.04	.03	.17***
7. T1 Supervision	.21***	.26***	.14**	.14***	.11**	.05	.13***	.18***	.15***	-.02	.12**	.10*
8. T2 Supervision	.16***	.18***	.19***	.05	.17***	.09*	-.01	.17***	.21***	-.02	.12**	.15***
9. T3 Supervision	.19***	.24***	.26***	.13**	.16***	.23***	.08	.25***	.28***	-.01	.11**	.15***
10. T1 Warmth	.19***	.20***	.18***	.09*	.10*	.15***	.07*	.13**	.19***	-.03	.08	.09*
11. T2 Warmth	.23***	.26***	.26***	.05	.16***	.16***	.05	.12**	.22***	-.01	.13**	.15***
12. T3 Warmth	.21***	.25***	.39***	.02	.06	.14**	.10*	.02	.19***	-.02	.03	.13**

Note. T1 = Time 1 (ages 10-12), T2 = Time 2 (ages 12-14), T3 = Time 3 (age 16); Ext. = Youth externalizing behavior problems; Alc. = youth alcohol use; Mar. = youth marijuana use; Hard = youth hard substance use.

* $p < .05$; ** $p < .01$, *** $p < .001$.

Aim 1: Identification of Parenting Classes across Times 1, 2, and 3

At Times 1, 2, and 3, cross-sectional LCA of parenting behaviors was conducted by testing a one-class model first (i.e., the independence model) and then exploring models with more classes (added one at a time). For each of the LCA models at these time points, tables describe fit information (i.e., log likelihood ratio, AIC, BIC, ABIC, *p* value for the BLRT, entropy, and smallest class size). Rows correspond to the number of classes examined for each model (e.g., row 1 contains the fit indices for a one-class model, row 2 for a two-class model, and so on). As noted above, the most reliable indicators of the number of classes that best fit the data are the BLRT and BIC (Nylund et al., 2007), and these indices were primarily considered in the model building process. The standardized class means for each parenting behavior are displayed in figures to aid in labeling and interpretation of the classes at each time point.

LCA at Time 1. Table 3 displays model fit indices for the LCA at Time 1. Based on this information, it was determined that a three-class model best fit the data. Although some fit indices continue to indicate a better fitting model with each additional class (e.g., AIC, ABIC, BIC), the non-significant BLRT *p* value indicated that the four-class model did not fit the data significantly better than the three-class model. The three-class model had satisfactory delineation of classes as indicated by the entropy (.811). Posterior class probabilities ranged from .841 to .941, indicating that a high percentage of caregivers were placed into classes that accurately reflect their respective parenting behaviors. The smallest class was conceptually meaningful and reasonable in size (14.9%, $n = 115$). In sum, a three-class model was determined to best fit the data at Time 1 based on multiple fit indices and parameters.

Table 3
Class Model Comparison at Time 1 (Ages 10-12)

Classes	Free parameters	Log likelihood	AIC	BIC	ABIC	BLRT	Entropy	Smallest Class Size *n* (%)
1	8	-4212.246	8440.492	8477.694	8452.291	N/A[a]	1	773 (100.0)
2	13	-4012.020	8050.040	8110.493	8069.212	<.0000	.74	212 (27.4)
3	18	-3918.513	7873.026	7956.731	7899.573	.0017	.81	115 (14.9)
4	23	-3878.059	7802.117	7909.074	7836.038	.1101	.84	32 (4.1)

Note. AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion, ABIC=Adjusted BIC; BLRT = Bootstrap Likelihood Ratio Test.
[a]BLRT is not available for the one-class model.

Parenting classes observed at Time 1, based on standardized values for the parenting variables, are displayed in Figure 3. In order to aid in the interpretation of these results, unstandardized class and overall sample means for each parenting measure are provided in Table 4. Although there were a variety of ways to label these classes, labels were chosen that identified key features of the patterns of parenting behaviors in each class that may be more likely to distinguish one class from the others. The Positive Parenting class (68.2%) was the largest class, and contained parents who reported high levels of parent-child communication, were consistent in their use of discipline, displayed good parental supervision, and were warmer towards their children compared to the other two classes. Rates of each parenting behavior in the Positive Parenting class were higher than the mean of the overall sample, with mean scores on parent-child communication, supervision, and warmth each being close to half a standard deviation higher than the sample mean. The Low Communication/Low Warmth class (14.9%) included parents who used relatively average levels of parental supervision strategies and were consistent in their discipline, compared to the other classes, but had the lowest levels of parent-child

communication and displayed the least amount of warmth towards their children compared to the other two classes, with the class means on these two behaviors being over one standard deviation below the overall sample mean. The third class, labeled Poor Supervision (16.9%), contained parents who were relatively average with regard to their consistent discipline and warmth, with scores falling a half standard deviation below the sample mean on each measure, and slightly lower levels of parent-child communication (slightly more than a half standard deviation below the sample mean), especially when compared to the Positive Parenting class. However, this class had significantly lower levels of parental supervision compared to the Positive Parenting and Low Warmth/Low Communication classes, with the class mean falling over one and a half standard deviations below the overall sample mean on this measure.

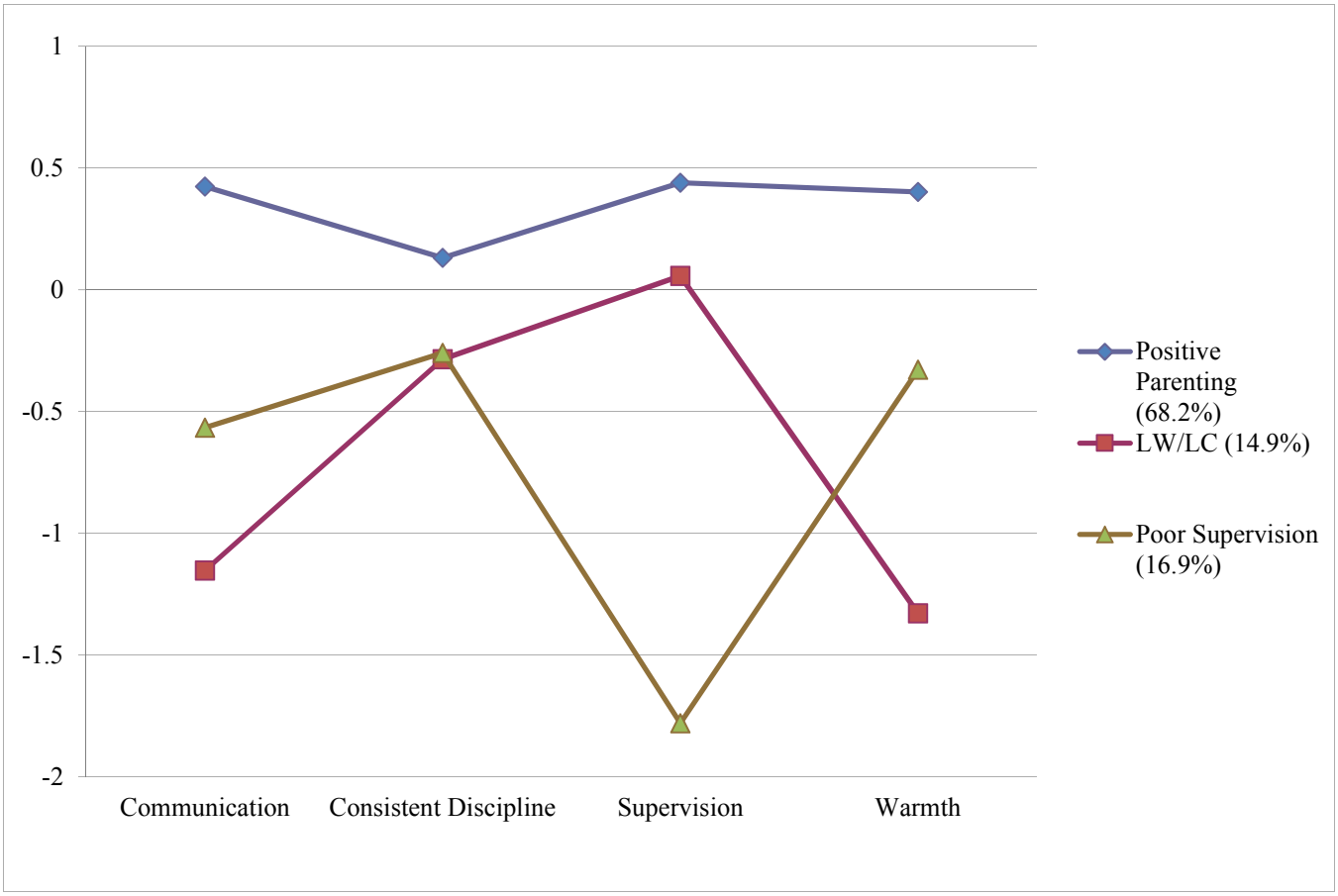

Figure 3. Standardized Parenting Means for the Three-Class Model of Parenting Behaviors at Ages 10-12 (*n*=773). Percentage of sample classified in each latent class provided in legend. LW/LC = Low Warmth/Low Communication parenting class.

Table 4
Means (SD) of Parenting Behaviors within Parenting Classes and the Overall Sample at Time 1 (Youth Age 10-12)

	Positive Parenting	Low Warmth/Low Communication	Poor Supervision	Overall Sample
Parent-Child Communication	60.49 (12.37)	44.92 (18.88)	50.71 (19.66)	56.30 (9.86)
Consistent Discipline	19.68 (3.37)	18.41 (3.68)	18.49 (3.75)	19.28 (3.04)
Parent Supervision	11.39 (1.15)	10.78 (2.47)	7.88 (2.20)	10.69 (1.58)
Warmth	10.21 (2.48)	6.69 (4.47)	8.73 (3.23)	9.39 (2.04)

LCA at Time 2. Results for the LCA at Time 2 indicated a four-class model best fit the data (Table 5). Although the AIC, ABIC, and BIC were slightly lower when a five-class model was examined, the BLRT *p*-value was no longer significant, indicating that the 5-class model did not

fit the data better than a 4-class model. The four-class model had good delineation of conceptually meaningful classes (entropy = .811, posterior class probabilities ranging from .843 to .924).

Table 5
Class Model Comparison at Time 2 (Ages 12-14)

Classes	Free parameters	Log likelihood	AIC	BIC	ABIC	BLRT	Entropy	Smallest Class Size *n* (%)
1	8	-3593.589	7203.177	7239.018	7213.618	N/A[a]	1	652 (100.0)
2	13	-3387.933	6801.866	6860.107	6818.832	<.0000	.82	152 (23.3)
3	18	-3314.842	6665.684	6746.325	6689.175	.0089	.86	55 (8.4)
4	23	-3255.493	6556.985	6660.026	6587.001	.0058	.81	45 (6.9)
5	28	-3224.729	6505.458	6630.899	6541.999	.1246	.87	42 (6.4)

Note. AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion, ABIC=Adjusted BIC; BLRT = Bootstrap Likelihood Ratio Test.
[a]BLRT is not available for the one-class model.

Examination of standardized means of each parenting variable within classes at Time 2 (Figure 4) indicated the presence of a Positive Parenting class (56.7%; high parent-child communication, consistent discipline, high parental supervision, high levels of parental warmth), an Adequate Parenting class (28.2%; consistent discipline and average levels of caregiver supervision, relatively low caregiver-child communication and parental warmth, particularly compared to the Positive Parenting class), a Poor Supervision class (8.1%; relatively average levels of parent-child communication, consistent discipline, and warmth toward their children, but the lowest levels of caregiver supervision; at least one standard deviation lower compared to the other classes and over two standard deviations below the overall sample mean), and a Consistent Discipline Only class (6.9%; relatively average levels of consistent discipline, but significantly lower levels of caregiver supervision, parent-child communication, and caregiver

warmth compared to the other three classes). The Consistent Discipline Only class had the lowest levels of the latter two parenting behaviors, with levels being over one standard deviation lower than each of the other three classes, and close to two standard deviations or more below the overall sample mean of these behaviors. Table 6 displays unstandardized class means and the overall sample means for each parenting measure at Time 2.

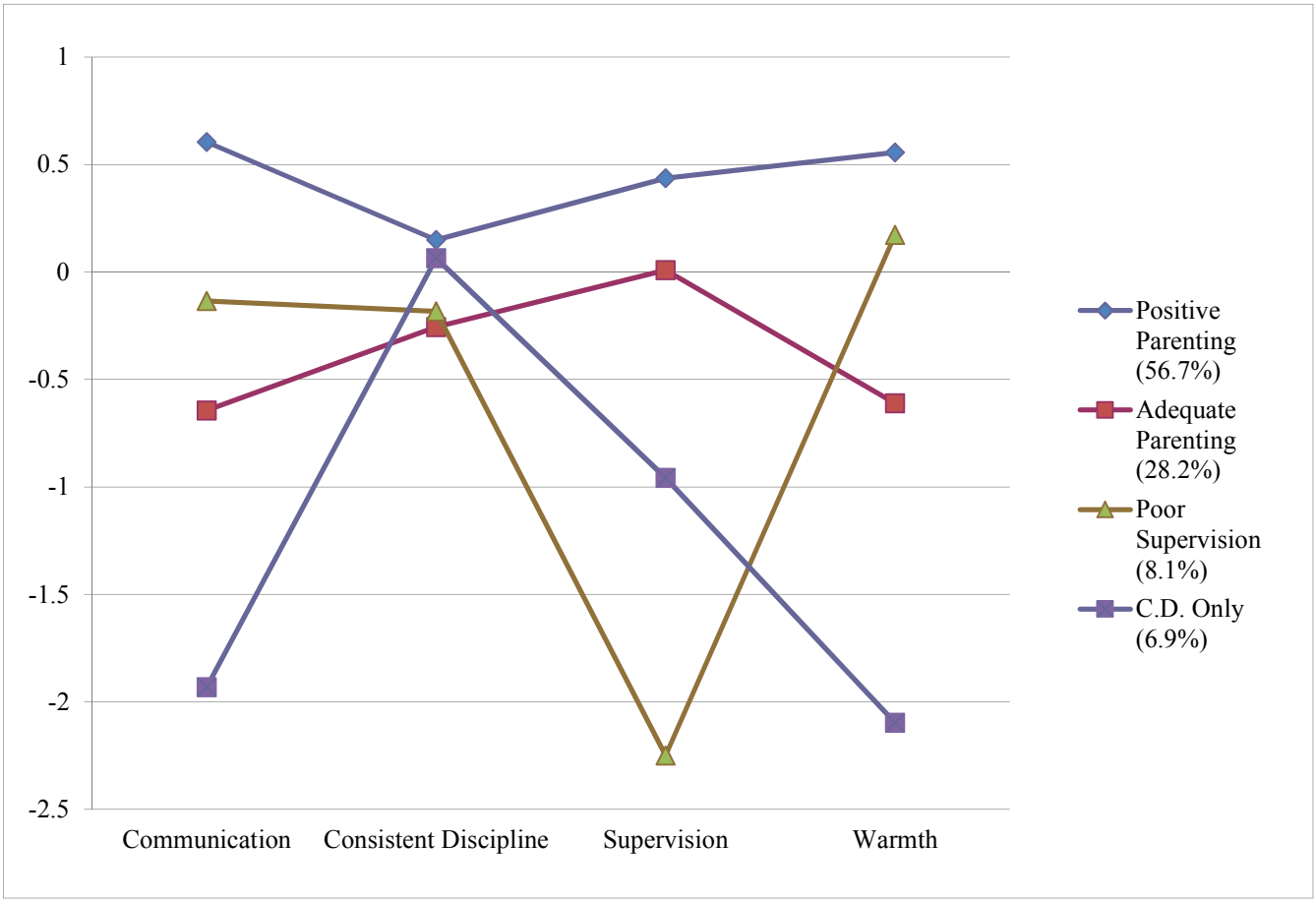

Figure 4. Standardized Parenting Means for the Four-Class Model of Parenting Behaviors at Ages 12-14 (*n*=652). Percentage of sample classified in each latent class provided in legend. C.D. Only = Consistent Discipline Only parenting class.

Table 6
Means (SD) of Parenting Behaviors within Parenting Classes and the Overall Sample at Time 2 (Youth Age 12-14)

	Positive Parenting	Adequate Parenting	Poor Supervision	Consistent Discipline Only	Overall Sample
Parent-Child Communication	62.66 (12.23)	49.65 (14.39)	54.97 (10.68)	36.26 (14.76)	56.36 (10.40)
Consistent Discipline	17.20 (2.64)	16.22 (3.13)	16.40 (3.91)	16.99 (2.88)	16.84 (2.41)
Parent Supervision	11.52 (.90)	10.94 (1.84)	7.86 (1.91)	9.62 (2.19)	10.92 (1.36)
Warmth	10.45 (1.98)	7.92 (4.00)	9.62 (2.31)	4.69 (2.64)	9.24 (2.17)

LCA at Time 3. Similar to the results at Time 1, results for the LCA indicated a three-class model best fit the data at Time 3 (Table 7). Despite the AIC and BIC being lower when a four-class model was examined, the BLRT *p*-value was not significant for the four-class model, indicating that it did not fit the data better than the three-class model. There was good separation of classes (entropy = .763), and posterior probabilities indicated good delineation of classes based on parenting behaviors (probabilities ranged from .867 to .916).

Table 7
Class Model Comparison at Time 3 (Age 16)

Classes	Free parameters	Log likelihood	AIC	BIC	ABIC	BLRT	Entropy	Smallest Class Size *n* (%)
1	8	-3434.667	6885.335	6920.85	6895.451	N/A[a]	1	626 (100.0)
2	13	-3248.636	6523.273	6580.984	6539.711	<.0000	.730	185 (29.6)
3	18	-3185.467	6406.934	6486.842	6429.695	<.0000	.763	48 (7.7)
4	23	-3147.908	6341.816	6443.816	6370.900	.3895	.748	40 (6.4)

Note. AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion, ABIC=Adjusted BIC; BLRT = Bootstrap Likelihood Ratio Test.
[a]BLRT is not available for the one-class model.

Similar to Times 1 and 2, examination of the standardized means of the parenting variables within each class at Time 3 (Figure 5) revealed the presence of a Positive Parenting class (50.3%; higher rates of parent-child communication, consistent discipline, more parental

supervision, high levels of parental warmth, all falling above the overall sample mean and close to or above one half a standard deviation higher than the other two classes). As with Time 2, both an Adequate Parenting class (42.0%; slightly below average levels of consistent discipline, caregiver supervision, caregiver-child communication, and parental warmth, compared to the Positive Parenting class) and a Consistent Discipline Only class (7.7%; only slightly below-average levels of consistent discipline, but parent-child communication, parent supervision, and warmth all being at least one standard deviation below the overall sample mean) were present at Time 3. Unstandardized class means and overall sample means for each parenting behavior are presented in Table 8.

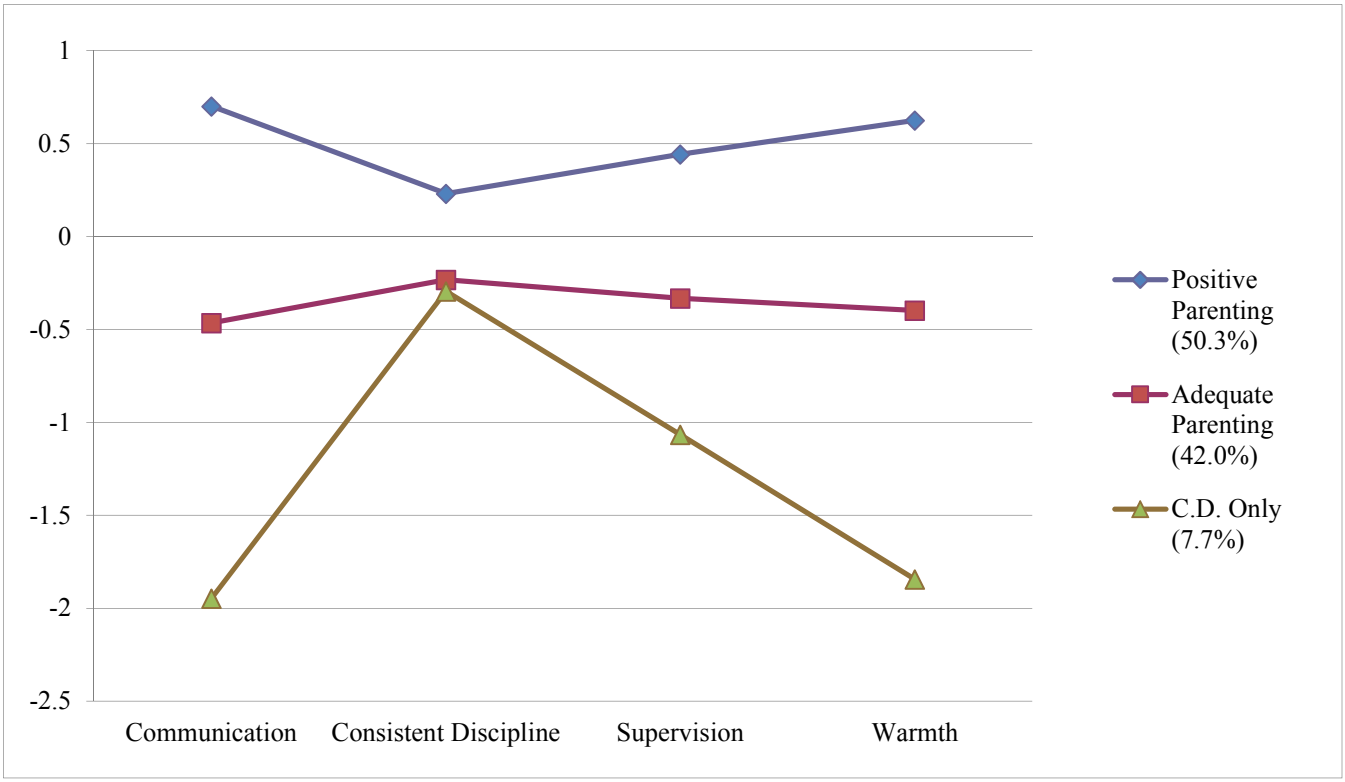

Figure 5. Standardized Parenting Means for the Three-Class Model of Parenting Behaviors at Age 16 (*n*=626). Percentage of sample classified in each latent class provided in legend. C.D. Only = Consistent Discipline Only parenting class.

Table 8
Means (SD) of Parenting Behaviors within Parenting Classes and the Overall Sample at Time 3 (Youth Age 16)

	Positive Parenting	Adequate Parenting	Consistent Discipline Only	Overall Sample
Parent-Child Communication	61.67 (9.50)	49.79 (10.36)	34.67 (9.55)	54.52 (10.20)
Consistent Discipline	18.42 (4.19)	16.79 (4.14)	16.57 (4.33)	17.61 (3.52)
Parent Supervision	11.19 (1.35)	9.92 (2.43)	8.72 (2.37)	10.46 (1.64)
Warmth	10.05 (1.93)	7.79 (2.53)	4.59 (2.06)	8.67 (2.21)

Aim 2: To explore whether and to what extent parenting classes differ cross-sectionally in their levels of child temperament and caregiver depression at Times 1 and 3, caregiver stress and family environment at Times 1 and 2, and youth behavior problems and youth substance use at Times 1, 2, and 3.

Equality of means testing was conducted at each time point across the identified latent classes to determine whether and to what extent classes differed regarding parent, child, and contextual factors. For continuous study variables (e.g., child temperament, caregiver stress, family environment, and youth behavior problems), χ^2 statistics for omnibus tests, along with pairwise comparisons across latent classes, are provided. Pairwise comparisons were interpreted only if the omnibus test was significant. Means, standard deviations, and comparison statistics for continuous study variables at Times 1-3 are displayed in Tables 9-11, respectively. Differences in categorical variables (e.g., paternal substance use, caregiver depression, youth substance use) across classes were determined using multinomial logistic regression, and are displayed in Table 12 for each time point. All analyses were determined to be significant if $p < .05$.

Equality of Means Tests at Time 1. The omnibus test examining differences in child temperamental mood among parenting classes was significant ($\chi^2(2) = 23.214$, $p < .001$ $\phi = .17$).

Follow-up pairwise comparisons revealed that children of caregivers in the Positive Parenting class had significantly higher levels of temperamental positive mood ($M = 24.17$, $SD = 3.83$) than children of caregivers in the Poor Supervision ($M = 22.19$, $SD = 4.30$; $\chi^2(1) = 22.496$, $p < .001$ $\phi = .17$) and the Low Warmth/Low Communication ($M = 22.41$, $SD = 4.45$; $\chi^2(1) = 14.618$, $p < .001$, $\phi = .14$) classes. Caregivers in the Positive Parenting class had significantly lower rates of depression that those in the Poor Supervision (B = -.463, SE B = .236, $p = .05$) and Low Warmth/Low Communication (B = -.597, SE B = .255, $p = .019$) classes. No significant difference was observed between the Poor Supervision and Low Warmth/Low Communication classes with regard to rates of caregiver depression (B = .135, SE B = .306, $p = .660$). Classes did not significantly differ in terms of levels of caregiver stress ($\chi^2(2) = 1.888$, $p = .389$, $\phi = .05$) or family environment ($\chi^2(2) = 2.671$, $p = .263$, $\phi = .06$).

With regard to child outcomes, the omnibus test showed significant differences among classes when examining child externalizing behavior problems ($\chi^2(2) = 26.894$, $p < .001$, $\phi = .19$). Follow-up pairwise comparisons revealed that children of caregivers in the Positive Parenting class had significantly lower levels of externalizing behavior problems ($M = 47.39$, $SD = 10.17$) compared to children of caregivers in the Poor Supervision ($M = 53.37$, $SD = 11.56$; $\chi^2(1) = 28.980$, $p < .001$ $\phi = .19$) and Low Warmth/Low Communication ($M = 51.93$, $SD = 11.97$; $\chi^2(1) = 13.680$, $p < .001$ $\phi = .13$) classes. With regard to youth alcohol use, there was significantly less youth alcohol use among youth with parents in the Positive Parenting class compared to the Poor Supervision class (B = -1.524, SE B = .503, $p = .002$). No significant differences in youth alcohol use were observed between the Positive Parenting and Low Warmth/Low Communication classes (B = -.921, SE B = .662, $p = .164$) or the Low Warmth/Low Communication and Poor Supervision classes (B = .603, SE B = .608, $p =$

.322).Because of the low rates of marijuana and hard drug use at this time point (0.9% for each), differences among classes in the rates of use could not be reliably calculated, and thus were not examined.

Ancillary analyses also were conducted to examine demographic differences among parenting classes. The age of the youth study participants was significantly different among parenting classes ($\chi^2(2) = 10.188$, $p = .006$, $\phi = .11$). Specifically, youth of caregivers in the Low Warmth/Low Communication class were significantly older ($M = 11.65$, $SD = .94$) than youth of caregivers in the Positive Parenting ($M = 11.38$, $SD = .94$; $\chi^2(1) = 7.011$, $p = .008$, $\phi = .10$) and Poor Supervision ($M = 11.34$, $SD = 1.05$; $\chi^2(1) = 5.207$, $p = .022$, $\phi = .08$) classes. Family SES was also significantly different among classes ($\chi^2(2) = 6.609$, $p = .037$, $\phi = .09$); pairwise comparisons indicated that caregivers in the Poor Supervision class ($M = 38.24$, $SD = 15.28$) had significantly lower SES than those in the Positive Parenting class ($M = 42.66$, $SD = 13.81$; $\chi^2(1) = 8.870$, $p = .003$, $\phi = .11$). Caregivers in the Positive Parenting class were significantly more likely to have female children than caregivers in the Poor Supervision class (B = -.799, SE B = .280, $p = .004$) but not the Low Warmth/Low Communication class (B = -.500, SE B = .277, $p = .071$).Paternal caregiver diagnostic status did not differ between the parenting classes at this time point (all B's < .27, SE's > .22, p's > .28).

Equality of Means Tests at Time 2. When children were ages 12-14, the omnibus tests revealed no significant differences across parenting classes in terms of caregiver stress ($\chi^2(2) = 1.215$, $p = .749$, $\phi = .04$) or family relationships ($\chi^2(2) = 1.788$, $p = .618$, $\phi = .05$). When examining differences in youth outcomes among parenting classes, the omnibus test revealed significant differences in terms of youth externalizing problems ($\chi^2(2) = 32.964$, $p < .001$ $\phi = .22$). Follow-up pairwise comparisons revealed that children of caregivers in the Positive

Parenting class had significantly lower externalizing behavior problems (M = 50.46, SD = 9.64) than children of parents in the Consistent Discipline Only (M = 58.98, SD = 11.14; $\chi^2(1)$ = 24.102, $p < .001$ $\phi = .19$), Adequate Parenting (M = 54.35, SD = 10.65; $\chi^2(1) = 16.038$, $p < .001$, $\phi = .16$), and Poor Supervision (M = 54.93, SD = 12.09; $\chi^2(1) = 6.606$, p =.010, $\phi = .10$) classes. Additionally, children of parents in the Adequate Parenting class evidenced fewer externalizing behavior problems than children of parents in the Consistent Discipline Only class ($\chi^2(1)$ = 6.139, p =.013, $\phi = .10$). Youth of caregivers in the Positive Parenting class used significantly less alcohol compared to youth of caregivers in the Adequate Parenting class (B = -.655, SE B = .327, p = .045). Differences in the rates of youth alcohol use among all other class comparisons were non-significant. Youth of caregivers in the Positive Parenting class reported significantly less hard substance use compared to youth of caregivers in the Consistent Discipline Only class (B = -3.060, SE B = 1.217, p = .012). Although not significant, there was a trend toward lower rates of youth marijuana use among the Positive Parenting class compared to the Poor Supervision class (B = -1.129, SE B = .588, p = .055). No other significant differences were observed among parenting classes with regard to youth marijuana or hard drug use. Additionally, classes did not differ with regard to demographic variables examined, including paternal caregiver diagnostic status (all $\chi^2(2) < 8.00$, p's > .06, ϕ's < .11).

Equality of Means Tests at Time 3. Omnibus tests examining differences in youth's temperamental positive mood among Time 3 parenting classes were significant ($\chi^2(2) = 26.761$, $p < .001$, $\phi = .21$). Follow-up pairwise comparisons revealed that children of caregivers in the Positive Parenting class (M = 24.91, SD = 3.65) had significantly higher levels of temperamental positive mood than children of caregivers in the Consistent Discipline Only (M = 21.88, SD = 4.97; $\chi^2(1) = 16.157$, $p < .001$, $\phi = .16$) and Adequate Parenting (M = 23.17, SD = 4.38; $\chi^2(1)$ =

24.182, $p < .001$, $\phi = .20$) classes. In terms of caregiver depression, no significant differences were seen among the parenting classes identified at this time point (B's < .21, SE's > .22, *p*'s > .50).

When examining differences among classes in youth outcomes, the omnibus test was significant for youth externalizing behavior problems ($\chi^2(2) = 67.953$, $p < .001$, $\phi = .33$). Pairwise comparisons revealed that youth externalizing behavior problems were significantly lower among the Positive Parenting class ($M = 45.07$, $SD = 10.24$) compared to the Consistent Discipline Only ($M = 57.59$, $SD = 10.17$; $\chi^2(1) = 62.770$, $p < .001$, $\phi = .32$) and Adequate Parenting ($M = 50.89$, $SD = 11.73$; $\chi^2(1) = 35.702$, $p < .001$, $\phi = .24$) classes. Additionally, youth externalizing behavior problems were significantly lower among the Adequate Parenting class compared to the Consistent Discipline Only class ($\chi^2(1) = 16.224$, $p < .001$, $\phi = .16$). No significant differences were observed among classes when examining rates of youth alcohol and hard drug use at this time point (B's < .22, SE's > .25, *p*'s > .40). However, children of caregivers in the Positive Parenting class used significantly less marijuana compared to children of caregivers in the Consistent Discipline Only (B = -1.032, SE B = .454, $p = .023$) and Adequate Parenting (B = -.686, SE B = .286, $p = .016$) classes. The Consistent Discipline Only class did not differ in terms of rates of marijuana use compared to the Adequate Parenting class (B = -.35, SE = .46, $p = .45$).

With regard to demographic differences, SES was significantly different among parenting classes ($\chi^2(2) = 9.784$, $p = .008$, $\phi = .13$). Specifically, caregivers in the Positive Parenting class had a higher SES ($M = 43.53$, $SD = 15.64$) compared to caregivers in the Consistent Discipline Only class ($M = 37.04$, $SD = 13.41$; $\chi^2(1) = 9.227$, $p = .002$, $\phi = .12$). Parenting classes did not

differ on additional demographic variables examined (all $\chi^2(2) < 1.00$, *p's* > .73), including paternal caregiver diagnostic status (all B's < .55, SE's > .21, *p*'s > .13).

Table 9
Means (SD) and Comparison Statistics for Parenting Classes at Time 1 (Youth Age 10-12)

Variable	Positive Parenting [a]	LW/LC [b]	Poor Supervision [c]	χ^2	Post Hoc	Effect Size
Child Temperamental Mood	24.17 (3.83)	22.41 (4.45)	22.19 (4.30)	23.214***	PP > LW/LC, PS	.17
Caregiver Stress	29.91 (2.71)	29.74 (2.81)	30.26 (3.25)	1.888	-	.05
Family Relationships	17.19 (2.94)	16.75 (3.29)	16.75 (2.92)	2.671	-	.06
Child Externalizing Behaviors	47.39 (10.17)	51.93 (11.97)	53.37 (11.56)	26.894***	PP < LW/LC, PS	.19

Note. PP = Positive Parenting class; LW/LC = Low Warmth/Low Communication parenting class; PS = Poor Supervision parenting class; χ^2 = omnibus main effect of parenting class; Effect size = phi; [a] *n* = 526, [b] *n* = 116, [c] *n* =131; ***$p < .001$.

Table 10
Means (SD) and Comparison Statistics for Parenting Classes at Time 2 (Youth Age 12-14)

Variable	Positive Parenting [a]	Adequate Parenting [b]	Poor Supervision [c]	Consistent Discipline Only [d]	χ^2	Post hoc	Effect Size
Caregiver Stress	30.23 (2.85)	30.30 (2.93)	30.51 (3.12)	29.94 (2.72)	1.215	-	.04
Family Relationships	16.85 (2.92)	16.49 (3.49)	16.43 (3.49)	16.45 (3.45)	1.788	-	.05
Child Externalizing Behaviors	50.46 (9.64)	54.35 (10.65)	54.93 (12.09)	58.98 (11.14)	32.964***	PP < OK, CD, PS; Adeq < CD	.22

Note. PP = Positive Parenting class; Adeq= Adequate Parenting class; PS = Poor Supervision class; CD = Consistent Discipline Only parenting class; χ^2 = omnibus main effect of parenting class; Effect size = phi; [a] *n* = 370, [b] *n* = 184, [c] *n* =45, [d] *n* =53; ***$p < .001$.

Table 11
Means (SD) and Comparison Statistics for Parenting Classes at Time 3 (Youth Age 16)

Variable	Positive Parenting [a]	Adequate Parenting [b]	Consistent Discipline Only [c]	χ^2	Post Hoc	Effect Size
Child Temperamental Mood	24.91 (3.65)	23.17 (4.38)	21.88 (4.97)	26.761***	PP > OK, CD	.21
Child Externalizing Behaviors	45.07 (10.24)	50.89 (11.73)	57.59 (10.17)	24.182***	PP < OK, CD; OK < CD	.20

Note. PP = Positive Parenting class; Adeq = Adequate Parenting class; CD = Consistent Discipline parenting class; χ^2 = omnibus main effect of parenting class; Effect size = phi; [a] *n* = 315, [b] *n* = 48, [c] *n* =263; ***$p < .001$.

Table 12

Multinomial Logistic Regression Analyses for Categorical Study Variables at Times 1-3

Effect	Pairwise Comparison	B	SE B	O.R.	95% C.I.
Time 1					
Caregiver Depression					
	Positive Parenting < Poor Supervision	-.463*	.236	1.59	-1.371, -.445,
	Positive Parenting < LW/LC	-.597*	.255	1.82	-1.671, -.671
	Poor Supervision vs. LW/LC	-.135	.306	1.15	.6729, 2.0863
Alcohol Use					
	Positive Parenting < Poor Supervision	-1.524**	.503	4.55	-3.977, -2.003
	Positive Parenting vs. LW/LC	-.921	.662	2.50	.1086, 1.4591
	Poor Supervision vs. LW/LC	-.603	.608	1.82	.1660, 1.8038
Time 2					
Alcohol Use					
	Positive Parenting vs. C.D. Only	-.662	.510	1.92	.1896, 1.4030
	Positive Parenting < Adeq Parenting	-.655*	.327	1.96	-1.927, -.644
	Positive Parenting vs. Poor Supervision	-.536	.481	1.69	.2277, 1.5034
	C.D. Only vs. Adeq Parenting	-.007	.552	1.01	.3362, 2.9329
	C.D. Only vs. Poor Supervision	-.125	.616	1.14	.2635, 2.9553
	Adeq Parenting vs. Poor Supervision	-.119	.501	1.12	.3322, 2.3726
Marijuana Use					
	Positive Parenting < C.D. Only	-.984	.616	2.70	.1116, 1.2518
	Positive Parenting vs. Adeq Parenting	-.162	.526	1.18	.3030, 2.3869
	Positive Parenting vs. Poor Supervision	-1.129	.588	3.13	.1020, 1.0250
	C.D. Only vs. Adeq Parenting	-.822	.657	2.27	.1211, .4670
	C.D. Only vs. Poor Supervision	-.145	.691	1.15	.2230, 3.3558
	Adeq Parenting vs. Poor Supervision	-.967	.604	2.63	.1163, 1.2436
Hard Drug Use					
	Positive Parenting < C.D. Only	-3.060*	1.217	20.00	-8.391, -3.616
	Positive Parenting vs. Adeq Parenting	-1.036	1.299	2.86	.0277, 4.5385
	Positive Parenting vs. Poor Supervision	-2.032	1.319	7.69	.0099, 1.7435
	Adeq Parenting < C.D. Only	-2.024*	1.030	7.69	.0175, .9969
	C.D. Only vs. Poor Supervision	-1.028	1.013	2.78	.0490, 2.6104
	Adeq Parenting vs. Poor Supervision	-.996	1.143	2.70	.0392, 3.4785
Time 3					
Caregiver Depression					
	Positive Parenting vs. C.D. Only	-.202	.374	1.22	.3923, 1.7020
	Positive Parenting vs. OK Parenting	-.191	.238	1.20	.5179, 1.3178
	C.D. Only vs. Adeq Parenting	-.011	.382	1.01	.4674, 2.0928
Alcohol Use					
	Positive Parenting vs. C.D. Only	-.111	.438	1.12	.3840, 2.0859
	Positive Parenting vs. OK Parenting	-.213	.254	1.23	.4910, 1.3302
	C.D. Only vs. Adeq Parenting	-.102	.452	1.11	.3720, 2.1920
Marijuana Use					
	Positive Parenting < C.D. Only	-1.032*	.454	2.78	-2.916, -1.134
	Positive Parenting < OK Parenting	-.686*	.286	2.00	-1.907, -.785
	C.D. Only vs. Adeq Parenting	-.346	.457	1.41	.2886, 1.7343
Hard Drug Use					
	Positive Parenting vs. C.D. Only	-.1.003	.558	2.70	.1227, 1.0961
	Positive Parenting vs. Adeq Parenting	-.243	.420	1.28	.3440, 1.7878
	C.D. Only vs. Adeq Parenting	-.760	.549	2.13	.1593, 1.3731

Note. LW/LC = Low Warmth/Low Communication parenting class; C.D. Only = Consistent Discipline Only parenting class; Adeq = Adequate parenting class.

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

Aim 3: Examine stability of parenting classes across Times 1, 2, and 3

Stability of parenting classes was examined using LTA. Classes were identified in the LTA models by using means obtained in the LCA to set class parameters. Cross-tabulations of stability and changes in class membership were examined for each class. LTA utilizes FIML to retain the original sample size at each LCA time point; as such, the total sample from the LCA at Time 1 ($N = 773$) was retained for estimating the variance-covariance matrix for the LTA models at Time 2 and Time 3. Stability and change in class membership was explored by examining conditional transition probabilities in the LTA models.

Cross tabulation of class membership. As seen in Table 13, the pattern of parenting behaviors present at each time point varied. The Positive Parenting class was the only class identified at each of the three time points. The Positive Parenting class was also the largest at each time point, despite the decrease of almost 18% from Time 1 to Time 3. The Low Warmth/Low Supervision class was only present at Time 1, and was the smallest of the three classes present at that time. The Poor Supervision class was present at Times 1 and 2 only, with the proportion of caregivers falling within this class decreasing by almost half from Time 1 to Time 2. An Adequate Parenting class emerged at Time 2, and was the second largest class at this time point. This class was also present at Time 3, and increased in size by almost 15%. Finally, a Consistent Discipline Only class emerged at Time 2 and was also observed at Time 3. At each time point, this class contained the smallest proportion of caregivers, and remained relatively consistent in size from one time point to the next.

Table 13
Percentage of Sample (n) in Classes Across Times 1, 2, and 3

	10-12 years (*N*=773)	12-14 years (*n*=652)	16 years (*n*=626)
Positive Parenting	68.2 (527)	56.7 (370)	50.3 (315)
Poor Supervision	16.9 (131)	8.1 (53)	--
Low Warmth/Low Communication	14.9 (115)	--	--
Adequate Parenting	--	28.2 (184)	42.0 (263)
Consistent Discipline Only	--	6.9 (45)	7.7 (48)

Note. Positive Parenting = good communication, consistent discipline, good parental supervision, more warmth means class; Low Warmth/Low Communication = consistent discipline, good parental supervision, poor communication, low warmth means class; Adequate Parenting = slightly below average levels of consistent discipline, caregiver supervision, caregiver-child communication, and parental warmth; Poor Supervision = low parent supervision, good communication, consistent discipline, high warmth means class; Consistent Discipline Only = consistent discipline, poor communication, supervision, and low warmth means class.

LTA of class membership. Table 14 shows the transition probabilities from ages 10-12 to 12-14 (Time 1 to Time 2). Rows correspond to parenting classes at Time 1 and columns correspond to classes at Time 2. Diagonals represent stability for the Positive Parenting and Poor Supervision parenting classes; however, because different classes were identified across these time points, these are the only cells where stability is reflected on the diagonal. Numbers off the diagonal are the proportion of caregivers who transition to another class. Consistent with cross-tabulation results of classes from Time 1 to Time 2, high levels of stability were seen for the Positive Parenting class, with a large proportion (79.1%) of caregivers remaining in that class across Times 1 and 2. For those caregivers who did transition from the Positive Parenting class to another class at Time 2, the majority (11.9%) moved to the Adequate Parenting class. The Poor Supervision class showed low levels of stability from Time 1 to Time 2, with only 21.9% of caregivers remaining in this class across time points. More caregivers transitioned from the Poor Supervision class into the Adequate Parenting (35.7%) and Positive Parenting (28.8%) classes

compared to those that remained in the Poor Supervision class, whereas only 13.5% of caregivers transitioned from the Poor Supervision class into the Consistent Discipline Only class at Time 2. High rates of transition between the Low Warmth/Low Communication parenting class into the Adequate Parenting class were seen from Time 1 to Time 2 (72.2%). Although these two classes were distinguished by different levels of observed parenting behaviors at each time point, the overall pattern of parenting behaviors was somewhat similar, which could account for the high number of caregivers from the Time 1 Low Warmth/Low Communication class to be captured in the Time 2 Adequate Parenting class.

Table 14
Transition Probabilities for Association with Latent Parenting Classes from Time 1 to Time 2

Time 1 (Ages 10-12)	Time 2 (Ages 12-14)			
	Positive Parenting (56.7%)	Adequate Parenting (28.2%)	Poor Supervision (8.1%)	Consistent Discipline Only (6.9%)
Positive Parenting (68.2%)	.791	.119	.068	.022
LW/LC (14.9%)	.102	.722	.001	.174
Poor Supervision (16.9%)	.288	.357	.219	.135

Positive Parenting = good communication, consistent discipline, good parental supervision, more warmth means class; Low Warmth/Low Communication = consistent discipline, good parental supervision, poor communication, low warmth means class; Adequate Parenting = slightly below average levels of consistent discipline, caregiver supervision, caregiver-child communication, and parental warmth; Poor Supervision = low parent supervision, good communication, consistent discipline, high warmth means class; Consistent Discipline Only = consistent discipline, poor communication, supervision, and low warmth means class.

Transition probabilities representing transitions from Time 2 to Time 3 (youth ages 12-14 to 16) are seen in Table 15. Rows represent parenting classes at Time 2, and columns represent columns at Time 3. Because the classes identified at Times 2 and 3 differed, the diagonal only represents stability for caregivers in the Positive Parenting, Adequate Parenting, and Consistent

Discipline Only classes. As with the transition from Time 1 to Time 2, a large proportion of caregivers (80.3%) remained in the Positive Parenting class between Time 2 and Time 3. The majority of caregivers who did transition from the Positive Parenting class moved into the Adequate Parenting class (18.3%). High levels of stability were also seen within the Adequate Parenting class, with 73.0% of caregivers remaining in this class from Time 2 to Time 3. Caregivers who transitioned from the Adequate Parenting class moved to the Positive Parenting class at a slightly higher proportion (15.1%) compared to the Consistent Discipline Only class (12.0%). Modest stability was seen within the Consistent Discipline Only class, with 39.3% of caregivers remaining in this class between Times 2 and 3. A higher proportion of caregivers, 55.8%, transitioned from this class into the Adequate Parenting class. The Poor Supervision class was no longer observed at Time 3. Just under half (49.6%) of the caregivers in this class at Time 2 transitioned into the Adequate Parenting class at Time 3, and just over one-third (34.3%) transitioned into the Positive Parenting class. The remaining 16.1% transitioned from the Poor Supervision class into the Consistent Discipline Only class.

Table 15

Transition Probabilities for Association with Latent Parenting Classes from Time 2 to Time 3

Time 2 (Ages 12-14)	Time 3 (Age 16)		
	Positive Parenting (50.3%)	Adequate Parenting (42.0%)	Consistent Discipline Only (7.7%)
Positive Parenting (56.7%)	.803	.183	.014
Adequate Parenting (28.2%)	.151	.730	.120
Consistent Discipline Only (6.9%)	.049	.558	.393
Poor Supervision (8.1%%)	.343	.496	.161

Note. Positive Parenting = good communication, consistent discipline, good parental supervision, more warmth means class; Adequate Parenting = slightly below average levels of consistent discipline, caregiver supervision, caregiver-child communication, and parental warmth; Poor Supervision = low parent supervision, good communication, consistent discipline, high warmth means class; Consistent Discipline Only = consistent discipline, poor communication, supervision, and low warmth means class.

Aim 4: Examine child temperament, caregiver stress, caregiver depressive symptoms, and family environment as predictors of stability and transitions among parenting classes.

Results of the chi-square difference test using the log-likelihood values revealed that child temperamental positive mood at Time 1 significantly predicted the pattern of parenting class transitions from Time 1 to Time 2 ($\chi^2(9) = 38.522$, $p < .001$, $\phi = .22$). There were no significant impacts of child temperament on transitions from Time 2 to Time 3, as well as no significant impact from caregiver depression, caregiver stress, or family relationships on transitions from Time 1 to Time 2 or Time 2 to Time 3 (all other $\chi^2(9) < 12.00$, p's $> .10$, ϕ's $< .12$).

CHAPTER 4

DISCUSSION

Despite tremendous growth in our understanding of the role of parenting in the development of children over the past decades, questions still remain regarding the stability and/or change in parenting profiles throughout child development, as well as factors that influence the use of specific parenting behaviors within these profiles (Roskam & Meunier, 2012). This question is particularly salient when seeking to understand the development and utilization of parenting behaviors over time as youth move though different developmental periods (e.g., middle and late childhood, adolescence), as well as understanding factors that may influence the stability and/or change in parenting over time. The present study addressed these gaps by (a) utilizing a person-centered approach (LCA) to identify classes of caregivers based on specific parenting behaviors that have been shown to impact child development in previous studies; (b) investigating whether and to what extent parenting classes differ on a number of important youth outcomes (e.g., youth externalizing behavior problems and substance use) and individual and contextual factors to evaluate the external validity of the identified classes; (c) examining stability and change among caregivers who differ in the parenting behaviors that they use across middle childhood and adolescence, periods in which little longitudinal work has been conducted (Greenley et al., 2006); and (d) evaluating child temperament, caregiver depression, caregiver stress, and family environment as predictors of the stability and/or changes related to class membership for parenting classes over time.

Results indicate that caregivers were grouped into different classes across the time points examined based on parenting behaviors utilized, with some classes evidenced across multiple

time points. A Positive Parenting class was identified when youth were ages 10-12, 12-14, and 16 years. A Poor Supervision class was identified when youth were ages 10-12 and 12-14 years; however, when youth were age 16, this class was not identified. At Time 1, a Low Warmth/Low Communication parenting class was identified that was not present at Times 2 or 3. Additionally, both a Consistent Discipline Only and Adequate Parenting class emerged when youth were ages 12-14 (Time 2) and remained present when youth were age 16 (Time 3). Although caregiver stress and family relationships did not differ between parenting classes at any time point, parents in the Positive Parenting had youth with more positive temperamental mood at Times 1 and 3 and caregiver depression rates were significantly lower within the Positive Parenting class compared to the Low Warmth/Low Communication and Poor Supervision classes at Time 1.At each time point, classes differed with regard to youth externalizing behavior problems and substance use, with the Positive Parenting class consistently showing lower rates of youth externalizing behavior problems across each time point. When significant differences were observed between classes regarding youth substance use, the Positive Parenting class again showed better youth outcomes. The present study not only elucidated patterns of parenting behaviors and their relations to youth outcomes over time, but also revealed transitions in caregivers' profiles of parenting across time points. Surprisingly, only youth temperamental positive mood at Time 1 predicted stability within and transition between parenting classes from Time 1 to Time 2. No other predictor significantly impacted parenting class membership from Time 1 to Time 2 or Time 2 to Time 3. Specific findings and their implications are presented below in the context of each of the original aims.

Aim 1: Identification of Parenting Classes

Classes of parenting behaviors that differed in terms of quality and/or frequency of parenting behaviors were identified using a person-centered approach at each time point. The current study sought to extend work examining parenting across middle childhood and adolescence by incorporating parenting behaviors that have been shown to influence children's adjustment during different developmental periods, but have rarely been examined concurrently when investigating parenting and its impact on youth development. I hypothesized that I would identify three parenting classes at each time point based on the type and levels of parenting behaviors used by caregivers. Although some classes were identified that were consistent with expected parenting profiles, different patterns of parenting classes also were identified that were counter to hypotheses. It is possible that the presence of these unexpected classes was due to the parenting behaviors used to construct the latent classes in the current study. Although hypotheses were based on previous studies examining both parenting profiles and commonly observed parenting styles (Baumrind, 1971; Cook et al., 2012; Luyck et al., 2011; Maccoby & Martin, 1983), the current study did not assess exactly the same indices of parenting styles as used in previous work. As such, the patterns of parenting behaviors observed in this study were not always consistent with the classes and profiles seen in previous research. Moreover, although previous studies have found consistency in the number of observed parenting classes across time points (e.g., Cook et al., 2012; Luyckx et al., 2011), the current study had three observed classes at Times 1 and 3, and four at Time 2. As noted below, this may have reflected developmentally typical changes in behaviors from one time point to the next that would be expected as children move through these developmental periods (e.g., decreases in caregiver supervision).

At ages 10-12, three classes of parenting behaviors emerged, and two were consistent with findings from previous studies. The Positive Parenting class, which was characterized by caregivers who were consistent in their discipline, supervised their children at a higher rate, had good communication with their children, and displayed the most warmth towards their children, was the largest class at this time point. The Low Warmth/Low Communication class at Time 1 contained parents who reportedly supervised their children at relatively average levels and were relatively consistent in their discipline, but had poor communication and displayed little warmth towards their children, with these latter two being over one standard deviation below the overall sample mean, and the lowest among each of the three classes. This class of parents was consistent with parenting classification frequently seen in the literature (Roskam & Meunier, 2012). A Poor Supervision class, consisting of caregivers who were relatively consistent in their use of discipline strategies and caregiver warmth, slightly lower (e.g., one-half standard deviation below the overall mean) levels of communication, but the lowest levels of caregiver supervision (over one and a half standard deviations below the overall mean), was identified but not expected.

The Positive Parenting and Poor Supervision classes present when children ages 10-12 also were observed when they were 12-14 years of age. Two additional classes were observed at this time point. The first, Adequate Parenting class, was characterized by average levels of caregiver supervision and slightly below average consistent discipline, with levels of caregiver warmth and caregiver-child communication being over half a standard deviation below the mean. A fourth class was identified at this time point, characterized by caregivers who displayed relatively average levels of consistent discipline but low (approximately one standard deviation or lower compared to the overall means) levels of parent-child communication, parent

supervision, and warmth. One reason for the presence of this Consistent Discipline Only class at this time point may be the expected decreases in rates of caregiver supervision from Time 1 to Time 2. Although previous research supports a decrease in caregiver supervision as youth move through middle childhood and gain more independence (Frick et al., 1999; Laird et al., 2003), the Consistent Discipline Only class likely captured those caregivers whose supervision decreased more than expected based on this previous work. I also hypothesized overall decreases in caregiver-child communication within each class from Time 1 to Time 2. However, decreases that were seen appeared to be captured by the emergence of the Consistent Discipline Only class, as rates within the Positive Parenting and Poor Supervision classes remained relatively stable.

Rather than seeing four groups at Time 3, the best-fitting model included three classes of parenting behaviors when youth were age 16, with the Positive Parenting, Adequate Parenting, and Consistent Discipline Only class being observed at this time. The Poor Supervision class was no longer identified at Time 3. Hypothesized decreases in caregiver supervision were not noted among the overall sample, and remained relatively consistent within the Positive Parenting and Adequate Parenting classes. However, slight decreases in supervision that may have been present at this time, as well as caregiver-child communication as youth reached age 16, were likely captured by the Consistent Discipline Only class.

Aim 2: Examine cross-sectional differences in levels of child temperament, caregiver depression, caregiver stress, family environment, and youth externalizing behavior problems and substance use across classes.

Following the identification of parenting classes, omnibus between-group analyses comparing levels of child temperament, caregiver depression, caregiver stress, and family relationships among the classes were conducted. Additionally, classes were compared based on

youth outcomes (e.g., externalizing behavior problems and substance use) to determine if levels of these negative behaviors differed among parenting classes. Hypotheses regarding the differences among classes in terms of caregiver stress and family environment were not supported. However, results revealed that classes differed in terms of the levels of child temperament and caregiver depression. As hypothesized, caregivers in the Positive Parenting class had youth with higher levels of positive temperament at Time 1 (youth ages 10-12) and Time 3 (youth age 16), as well as lower levels of caregiver depression at Time 1, compared to the other parenting classes identified at these time points. Caregivers in the other classes seen at Time 1 (e.g., Poor Supervision and Low Warmth/Low Communication) and Time 3 (Adequate Parenting and Consistent Discipline Only) were characterized by higher levels of parenting behaviors that have been linked to both caregiver depression and difficult child temperament in previous work. For example, depressed caregivers display higher levels of hostility and less affectionate behavior towards their children (Gerdes et al., 2007; Lovejoy et al., 2000). Additionally, difficult child temperament has been shown to elicit more parental irritability, use of authoritarian parenting behaviors, and caregivers' withdrawal of contact from their children (Lee et al., 2013, Putnam et al., 2002). As such, results of the current study add to the extant literature regarding the effects of caregiver depression and youth temperament on parenting, and suggest that these are key factors to consider when exploring factors that might be contributing to less than optimal parenting (e.g., inconsistent discipline; low warmth, etc.) and/or problematic youth behaviors in a treatment or prevention setting.

As hypothesized, and in support of previous work examining youth behavior problems in the context of different parenting profiles (Hoeve et al., 2011; Steinberg, 2001), parents in the Positive Parenting class had youth with lower levels of externalizing behavior problems at each

time point when compared to other parenting classes. Youth display externalizing behavior problems for a number of reasons, but research has consistently demonstrated that parenting behaviors including warmth, communication, supervision, and consistent discipline are strong predictors in the development and maintenance of these behaviors (Dishion & Andrews, 1995; Dishion et al., 2004; Lansford et al., 2002; Ledoux, Miller, Choquet, & Plant, 2002). It is likely that transactional processes are involved in the maintenance of these behaviors across each of these developmental periods (Gault-Sherman, 2012), with the nature of the coercive interactions between caregivers and their children changing as children get older. For example, an adolescent and caregiver may have increasing conflict regarding the amount of autonomy the child is permitted, leading to decreases in caregiver warmth and emotional support, as well as the use of more detrimental control strategies by the caregiver (e.g., psychological control), putting the adolescent at risk for externalizing problems or substance use (Barber & Harmon, 2002; Droomers et al., 2003; Sentse et al., 2009). Conversely, caregivers may adopt a more permissive parenting style as youth move through middle childhood and adolescence, becoming more inconsistent in their discipline or decreasing their supervision of their child in the belief that they are supporting the development of autonomy for their child. However, these strategies also have been linked with detrimental youth outcomes during middle childhood and adolescence (Dishion et al., 2004; Kumpfer & Alvarado, 2003; Laird et al., 2008). Future research would benefit by further examining the nature of these interchanges as children move through middle childhood and adolescence to further explore variables that maintain, or could potentially change, these interactions.

Results regarding substance use were somewhat unexpected, as few significant differences were seen among classes at each time point. With regard to alcohol use, parents in

the Positive Parenting class had youth who used less alcohol than Poor Supervision class at Time 1, and only the Adequate Parenting class at Time 2. The only significant differences among classes regarding marijuana use were seen at Time 3, with the Positive Parenting class having youth who used marijuana less than both the Adequate Parenting and Consistent Discipline Only classes. Significant differences in hard drug use were only seen at Time 2, with the Positive Parenting and Adequate Parenting classes having youth who use less hard substances than the Consistent Discipline Only class. The fewer findings seen in the current study may be due to a number of factors. First, these results may reflect developmentally normative rates of substance use initiation across development, particularly with regard to alcohol use as children move into the adolescent years (Costello, Copeland, & Angold, 2001). Second, the significant findings for marijuana and hard substance use may have captured an age at which youth are beginning to try different substances for the first time, especially those youth whose caregivers do not use effective parenting strategies, particularly parental supervision and consistent discipline strategies (Fletcher, Darling, & Steinberg, 1995; Marshal & Chassin, 2000). The fact that youth marijuana use was the only significant difference between caregivers in the Positive Parenting class compared to the other classes when youth were age 16 is in line with previous findings suggesting lower rates of substance among youth whose parents employ Authoritative parenting strategies (e.g., consistent discipline, high warmth; Hoffmann & Bahr, 2014; Montgomery, Fisk, & Craig, 2008), and the relative absence of significant findings regarding hard substance use at Times 1 and 3 may reflect a more even distribution of this low base rate variable across classes. Finally, the overall low frequency of youth substance use in the current sample may have made it difficult to detect significant differences among parenting classes.

Aim 3: Stability of Parenting Class Membership

Both stability and transitions in class membership were evident over the course of the developmental periods examined in the current study. Stability was evident among the Positive Parenting class at each time point. Despite decreases in the number of caregivers from Time 1 to Time 3, the Positive Parenting class was the largest class at each time point. The Low Warmth/Low Communication class present at Time 1 was not present at any other time point, with the largest proportion transitioning into the Adequate Parenting class at Time 2. The Poor Supervision class showed the lowest rates of stability from Time 1 to Time 2, with the majority of caregivers who did transition from the Time 1 Poor Supervision class moving to the Time 2 Adequate Parenting class, reflecting increases in levels of caregiver supervision among those caregivers. The hypothesized decrease in supervision from Time 1 to Time 2, along with some caregivers showing even lower levels of caregiver warmth and communication, was likely reflected by the presence of the Consistent Discipline Only class at Time 2. Indeed, this class was comprised primarily of caregivers who transitioned from the Low Warmth/Low Communication class at Time 1, with only small percentages of caregivers in the Positive Parenting class at Time 1 moving into this class at Time 2.

The LTA findings from Time 2 to Time 3 revealed continued stability within the Positive Parenting and Adequate Parenting classes, with only moderate rates of stability within the Consistent Discipline Only class seen, with approximately 56% of caregivers transitioning out of this latter class from Time 2 to Time 3. The Poor Supervision class was not identified at Time 3, with approximately half of the caregivers in this Time 2 class transitioning into the Time 3 Adequate Parenting class.

Aim 4: Examination of Youth Temperament, Caregiver Depression, Caregiver Stress, and Family Relationships as Predictors of Stability and Transitions among Parenting Classes

Four variables that have been associated previously with parenting behaviors were examined as potential predictors of stability and transitions of parenting class membership across time points. It was hypothesized that difficult child temperament, caregiver depression, high levels of caregiver stress, and lower levels of a positive family environment would result in stability within, and transition to, parenting classes identified by higher levels of poor parenting behaviors. Overall, child temperamental positive mood was the only proposed moderator to influence transitions between parenting classes, and only from Time 1 to Time 2. Caregivers were equally likely to move among parenting classes across the two transition points regardless of their depression status, levels of perceived stress, and the quality of the overall family relationships. Child temperament has consistently been linked with parenting behaviors in the literature, and previous studies indicate that child temperament interacts reciprocally with parenting behaviors and, potentially thus parenting profiles (e.g., goodness of fit; Thomas & Chess, 1977). Results revealed that caregivers in the Positive Parenting class had youth with higher levels of temperamental positive mood, and those in the Low Warmth/Low Communication and Poor Supervision classes had youth with more negative temperamental mood at this time. These results were consistent with previous literature (Katainen et al., 1999; Kyrios & Prior, 1990; Lee et al., 2013), and in the context of the current study suggest that parents may have formulated a pattern of less-than-optimal parenting behaviors in response to their child's difficult temperament. However, results suggest that caregivers may have been faced with altering their patterns of parenting as youth moved from childhood into adolescence, and likely began to seek more independence and autonomy over their decisions and activities in

their day-to-day life. During this transition from later childhood into early adolescence, youth with a more difficult temperament may have been less responsive to their parents' attempts to monitor and/or control their behavior, possibly leading their parents to adopt a parenting style that is characterized by lower levels of supervision and poor caregiver-child interactions. However, there may be less variability or transitions in parenting practices as youth move through adolescence as caregivers either learn what works best to continue to appropriately manage their adolescent's behavior, or remain more committed to using negative parenting practices in response to their child's difficult mood. This lack of variability may have contributed to the lack of significant moderation in transitions among parenting profiles from Time 2 to Time 3.

The lack of moderation in transitions between parenting classes for the remaining variables was unexpected given previous work that found these effects. One reason that might explain the lack of findings is the use of time varying moderators. Time varying factors are those expected to vary across measurement occasions. In contrast, time invariant factors are not likely to change over time or the course of measurement occasions (Roskam & Meunier, 2012). In the current study, caregiver depression, caregiver stress, and family relationships can be viewed as time varying factors, and child temperament can be viewed as a time-invariant factor. Although previous literature suggests that caregiver depression, caregiver stress, and family relationships would be likely to impact the patterns of parenting behaviors used over time, it is possible that capturing one instance of a stressor that may change over time may not be the most accurate way to assess for the effects of these types of stressors on the transition between parenting profiles. One such way to assess for the impact of these time-varying variables is to develop composite scores measuring cumulative stressors and the role that these stressors plays on the transition

from one parenting class to another over time. A second explanation for these findings is the presence of additional protective factors that may have buffered against, or helped develop, resilience towards the impact of stress on parenting behaviors. These factors may have been at play throughout the course of the study, or when the caregiver or child were experiencing acute stress from the effects of a stressor (e.g., increased family conflict), but missed as a result of the way data were collected or analyzed. For example, a caregiver may have met diagnostic criteria for depression at one of the data collection periods, but their parenting behaviors were not significantly impacted because of the presence of other protective factors such as strong social support or the fact that the caregiver was receiving psychiatric care, which may have led to the non-significant findings across these variables.

Strengths, Limitations, and Future Directions

The current study has several methodological strengths. The large, longitudinal dataset spanned childhood to mid-adolescence and repeated measures allowed for comparisons of classes and transitions and stability of class membership based on caregiver behaviors over time. The prospective nature of the dataset allowed for examination of differences in caregiver behaviors at different developmental periods, as well as predictors of stability or movement among classes. Analyses included considerations of both the quality and quantity of parenting behaviors across different periods of child development, stability of classes, and predictors of class membership and transition, which affords insight into factors that may promote risk and resilience for parenting profiles. To my knowledge, this is the first study utilizing person-centered approaches (e.g., LTA and LCA) to examine profiles of parenting behaviors both cross-sectionally and over time to determine whether and to what extent caregivers' parenting behaviors changes as children move through different stages of development. Although previous

research on parenting and youth development has examined trajectories of specific parenting behaviors (e.g., discipline, communication) or styles, the use of LCA in the current study afforded a unique opportunity to examine additional profiles of parenting behaviors related to Baumrind's dimensions of support and control and build upon the growing body of parenting research utilizing person-centered approaches. Additionally, the use of LTA afforded the opportunity to place parenting in a developmental framework, examining stability and change in parenting behaviors as youth move through middle childhood and adolescence. Furthermore, analyses allowed for the exploration of factors that may confer risk or resilience with regard to changes in parenting behaviors over time, an important theme within the developmental psychopathology framework (Drabick, 2009). Additional strengths include the racial and ethnic diversity of the sample, as well as the utilization of child reports of parental behavior, allowing for the child to give his or her perspective on their caregiver's parenting practices, which is thought to be a more accurate assessment of parenting behaviors (Drabick, Gadow, & Sprafkin, 2006).

Despite these strengths, the current study was not without limitations. First, although the person-centered statistical approaches utilized were deemed the most appropriate to test the research questions, there is no "gold-standard" indicator for evaluating model fit. As such, a combination of statistical and conceptual considerations was used when interpreting findings and selecting the best-fitting models, which has potential implications for the generalizability of the findings. Additionally, the developmental periods available in this archival dataset prevented me from examining parenting behaviors, correlates of parenting class membership, and predictors of stability and transition among parenting classes at an earlier age. Investigating these relations at an earlier age would be especially interesting, as it would allow for a better understanding of

parenting across a broader range of child development, as well as understanding the potential influence of individual, child, and contextual factors on parenting evidenced before age 10. Also, Finally, as the CEDAR sample is predominantly male, results of the study may not be as readily generalizable to female youth.

Future research should apply person-centered approaches to investigating parenting behaviors at earlier developmental periods, as patterns may be different among children who are younger than those in the current study (Kim, Pears, Fisher, Connelly, & Landsverk, 2010). As some of the LCA classes identified in the current study were not expected, replication of the LCA classes is important to establish reliability, particularly within a sample with more similar numbers of males and females. Adding fathers/paternal caregivers into models of parenting behaviors over time would allow for the examination of differences in parenting between paternal and maternal caregivers, as research has shown that maternal and paternal caregivers don't necessarily adopt the same parenting behavior profiles for their children (Simons & Conger, 2007). Future studies also would benefit from investigating additional factors that may predict stability and change in parenting behaviors over time. For example, one important caregiver-specific factor to include in future studies is additional caregiver psychopathology. Although caregiver depression has received the bulk of the empirical work, anxiety, substance use, and various personality disorder traits (e.g., antisocial personality disorder and borderline personality disorder) have been linked to inconsistent discipline, low caregiver warmth, and increased disengagement from their children (Eiden et al., 2007; Harvey et al., 2011; Whaley, Pinto, & Sigman, 1999; Woodruff-Borden et al., 2002). Youth externalizing behavior problems have been found to have longitudinal impacts on specific parenting behaviors (e.g., caregiver monitoring, harsh discipline; Laird et al., 2003; Lansford et al., 2011), and thus is an important

child-specific factor that merits continued research in how these behavior problems affect parenting longitudinally. An additional child-specific factor that may also be important is youth executive functioning. Recent research has found associations between parenting behaviors and executive functioning in youth (Eisenberg, Zhou, Spinrad, Valiente, Fabes, & Liew, 2005; LeCuyer-Maus & Houck, 2002; Schroeder & Kelly, 2009). Longitudinal studies are needed to assess potential transactional relations between child executive functioning and parenting behaviors factors.

An additional parent-specific variable to consider in future studies is the multi-generational influence on caregiver's behaviors. It is widely accepted that intra-family experiences play a significant role in the development of a person's parenting behaviors (Hops, Davis, Leve, & Sheeber, 2002; Serbin & Stack, 1998). However, only a small number of studies have examined these generational effects, and the extant literature has focused largely on the inter-generational transmission of negative behaviors (e.g., abusive parenting; Hops et al., 2002). Multi-generational studies utilizing a person-centered approach that examine multiple parenting behaviors, similar to the current study, would help to establish what protects against or promotes parenting behaviors that are established as being more harmful to youth, allowing for tailored interventions based on parenting history and across developmental periods.

Conclusions and Clinical Implications

Several main findings emerged from this study that both support and expand upon previous work on parenting and youth development. First, classes of caregivers were identified based on a number of key parenting behaviors at each time point, including classes not typically seen in studies of parenting behavior profiles or styles. Additionally, these classes differed cross-sectionally in their relation to caregiver depression, difficult child temperament, youth

externalizing problems, and youth substance use. Second, both stability within and transitions among classes were observed across the developmental span included, with the highest rates of stability seen within the Positive Parenting class over all three time points. Classes emerged at each time point that reflected empirically supported developmental changes in caregiver-child interactions, namely with regard to supervision and caregiver-child communication. Finally, child temperament was observed to significantly impact parenting class transitions from Time 1 to Time 2. Although fewer moderating effects were observed than hypothesized, results highlight the importance of examining risk and protective factors in determining patterns of parenting behaviors across different developmental periods, as well as correlates of parenting behaviors including youth externalizing problems and substance use. These findings can inform prevention and intervention efforts among families by improving identification of caregivers at risk for employing more detrimental parenting behaviors, such as poor communication, low warmth, inconsistent discipline, and poor supervision. Additionally, individual- and family-based interventions can be refined in order to identify risk factors that may negatively influence parenting behaviors, such as caregiver depression or having a child with a difficult temperament. Existing treatments can be tailored to address these risks, along with implementing empirically supported techniques to improve the overall family climate and promote positive parenting strategies (e.g., consistent discipline, effective supervision, caregiver-child communication, and warm, positive caregiver-child relationships).

Findings point to the importance of considering not only child outcomes and parenting practices, but also individual and contextual factors that may influence parenting, and thus child development, when assessing clients and selecting and implementing preventions and interventions. If providers are able to identify risk factors that can be modified by their inclusion

in the treatment goals, gains can be made across multiple parent and child domains. For example, treatment studies have shown that decreases in caregiver depression leads to improvement in parenting (Harvey et al., 2011). Additionally, factors investigated in the current study can be assessed by providers across mental health and medical settings. With a shift currently occurring within the field of psychology towards more integrated primary care within a medical setting, the current findings can build upon and enhance prevention and intervention efforts through the education and training of additional practitioners to identify risks for the use of harmful parenting practices and improve rates of caregivers and families getting necessary referrals. Research continues to show the importance of intervening at the earliest age possible, as this provides the best long-term return on investment of societal resources (Heckman, 2008). As such, the ability to identify and intervene at an early age to promote positive parenting practices, including identifying risk factors that may be present for caregivers in pre- and perinatal periods, could lead to improved and more sustainable treatment gains for families over the course of youth development.

REFERENCES

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

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

Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA School-Age Forms & Profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth, and Families.

Akaike, H. (1987). Factor analysis and AIC. *Psychometrika, 52*, 317-332.

Akhter, N., Hanif, R., Tariq, N., & Atta, M. (2011). Parenting styles as predictors of externalizing and internalizing behavior problems among children. *Pakistan Journal of Psychological Research*, *26*, 23-41.

American Psychiatric Association (1987). *Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition.* Washington, DC: American Psychiatric Association.

Ammerman, R. T., Kolko, D. J., Kirisci, L., Blackson, T. C., & Dawes, M. A. (1999). Child abuse potential in parents with histories of substance use disorder. *Child Abuse and Neglect*, *23*, 1225-1238.

Arellano, P., Harvey, E. A., & Thakar, D. A. (2012). A longitudinal study of the relation between depressive symptomatology and parenting practices. *Family Relations: An Interdisciplinary Journal of Applied Family Studies*, *61*, 271-282.

Asher, S. R., Parkhurst, J. T., Hymel, S., & Williams, G. A. (1990). Peer rejection and loneliness in childhood. In S. R. Asher, J. D. Coie (Eds.), *Peer rejection in childhood* (pp. 253-273). New York, NY, US: Cambridge University Press.

Barber, B. K., & Harmon, E. (2002). Violating the self: Parental psychological control of children and adolescents. In B. K. Barber (Ed.), *Intrusive parenting: How psychological control affects children and adolescents* (pp. 15-52). Washington, DC, US: American Psychological Association.

Barnes, G. M., Reifman, A. S., Farrell, M. P., & Dintcheff, B. A. (2000). The effects of parenting on the development of adolescent alcohol misuse: A six-wave latent growth model. *Journal of Marriage and the Family*, *62*, 175-186.

Barnow, S., Schuckit, M. A., Lucht, M., John, U., & Freyberger, H. J. (2002). The importance of a positive family history of alcoholism, parental rejection and emotional warmth, behavioral problems and peer substance use for alcohol problems in teenagers: A path analysis. *Journal of Studies on Alcohol*, *63*, 305-315.

Bates, J. E., Pettit, G. S., & Dodge, K. A. (1995). Family and child factors in stability and change in children's aggressiveness in elementary school. In J. McCord (Ed.), *Coercion and punishment in long-term perspectives* (pp. 124-138). New York, NY, US: Cambridge University Press.

Bates, J. E., Pettit, G. S., Dodge, K. A., & Ridge, B. (1998). Interaction of temperamental resistance to control and restrictive parenting in the development of externalizing behavior. *Developmental Psychology*, *34*, 982-995.

Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology Monograph*, *4*, 1-103.

Belsky, J. (1984). The determinants of parenting: A process model. *Child Development*, *55*, 83-96.

Belsky, J., Crnic, K., & Woodworth, S. (1995). Personality and parenting: Exploring the mediating role of transient mood and daily hassles. *Journal of Personality*, *63*, 905-929.

Bodner, T. E. (2008). What improves with increased missing data imputations?. *Structural Equation Modeling*, *15*, 651-675.

Bögels, S. M., & van Melick, M. (2004). The relationship between child-report, parent self-report, and partner report of perceived parental rearing behaviors and anxiety in children and parents. *Personality and Individual Differences*, *37*, 1583-1596.

Bowers, E. P., Johnson, S. K., Buckingham, M. H., Gasca, S., Warren, D. A., Lerner, J. V., & Lerner, R. M. (2014). Important non-parental adults and positive youth development across mid- to late-adolescence: The moderating effect of parenting profiles. *Journal of Youth and Adolescence*, *43*, 897-918.

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, *32*, 513–531.

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

Buehler, C., & Gerard, J. M. (2002). Marital conflict, ineffective parenting, and children's and adolescents' maladjustment. *Journal of Marriage and Family*, *64*, 78-92.

Buhrmester, D. (1998). Need fulfillment, interpersonal competence, and the developmental contexts of early adolescent friendship. In W. M. Bukowski, A. F. Newcomb, W. W. Hartup (Eds.), *The company they keep: Friendship in childhood and adolescence* (pp. 158-185). New York, NY, US: Cambridge University Press.

Calafat, A., García, F., Juan, M., Becoña, E., & Fernández-Hermida, J. (2014). Which parenting style is more protective against adolescent substance use? Evidence within the European context. *Drug and Alcohol Dependence*, *138,* 185-192.

Campbell, S. B. (1979). Mother–infant interaction as a function of maternal ratings of temperament. *Child Psychiatry and Human Development, 10*, 67–76.

Cappa, K. A., Begle, A., Conger, J. C., Dumas, J. E., & Conger, A. J. (2011). Bidirectional relationships between parenting stress and child coping competence: Findings from the PACE study. *Journal of Child and Family Studies*, *20*, 334-342.

Carson, D. K., Council, J. R., & Volk, M. A. (1989). Temperament as a predictor of psychological adjustment in female adult incest victims. *Journal of Clinical Psychology*, *45*, 330-335.

Castro-Schilo, L., Taylor, Z. E., Ferrer, E., Robins, R. W., Conger, R. D., & Widaman, K. F. (2013). Parents' optimism, positive parenting, and child peer competence in Mexican-origin families. *Parenting: Science and Practice*, *13*, 95-112.

Celeux, G., & Soromenho, G. (1996). An entropy criterion for assessing the number of clusters in a mixture model. *Journal of Classification, 13*, 195-212.

Chi, T. C., & Hinshaw, S. P. (2002). Mother-child relationships of children with ADHD: The role of maternal depressive symptoms and depression-related distortions. *Journal of Abnormal Child Psychology*, *30*, 387-400.

Clark, D., Moss, H.B., Kirisci, L., Mezzich, A., Miles, R. & Ott, P. (1997). Psychopathology in preadolescent sons of fathers with substance use disorders. *Journal of the American Academy of Child and Adolescent Psychiatry*, *36*, 495-502.

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*, 385-396.

Collins, W., Madsen, S. D., & Susman-Stillman, A. (2002). Parenting during middle childhood. In M. H. Bornstein (Ed.), *Handbook of parenting: Vol. 1: Children and parenting (2nd ed.)* (pp. 73-101). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Conger, R. D., Schofield, T. J., Neppl, T. K., & Merrick, M. T. (2013). Disrupting intergenerational continuity in harsh and abusive parenting: The importance of a nurturing relationship with a romantic partner. *Journal of Adolescent Health*, *53*, S11-S17.

Cook, G.A., Roggman, L.A., & D'zatko, K. (2012). A person-oriented approach to understanding dimensions of parenting in low-income mothers. *Early Childhood Research Quarterly*, *27*, 582-595.

Coplan, R. J., Prakash, K., O'Neil, K., & Armer, M. (2004). Do you ''want'' to play? Distinguishing between conflicted shyness and social disinterest in early childhood. *Developmental Psychology*, *40*, 244–258.

Costello, E., Copeland, W., & Angold, A. (2011). Trends in psychopathology across the adolescent years: What changes when children become adolescents, and when adolescents become adults? *Journal of Child Psychology and Psychiatry*, *52*, 1015-1025.

Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin*, *115*, 74-101.

Crnic, K. A., Greenberg, M. T., Ragozin, A. S., Robinson, N. M., & Basham, R. B. (1983). Effects of stress and social support on mothers and premature and full-term infants. *Child Development*, *54*, 209-217.

Crnic, K., & Low, C. (2002). Everyday stresses and parenting. In M. H. Bornstein (Ed.), *Handbook of parenting: Vol. 5: Practical issues in parenting (2nd ed.)* (pp. 243-267). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Dancy, B. L., & Handal, P. J. (1984). Perceived family climate, psychological adjustment, and peer relationship of Black adolescents: A function of parental marital status or perceived family conflict?. *Journal of Community Psychology*, *12*, 222-229.

Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological Bulletin*, *113*, 487-496.

Deater-Deckard, K. (1998). Parenting stress and child adjustment: Some old hypotheses and new questions. *Clinical Psychology: Science and Practice*, *5*, 314-332.

Deater-Deckard, K., & Scarr, S. (1996). Parenting stress among dual-earner mothers and fathers: Are there gender differences?. *Journal of Family Psychology*, *10*, 45-59.

DeLoache, J. S., Miller, K. F., and Pierroutsakos, S. L. (1998). Reasoning and problem solving. In D. Kuhn and R. S. Siegler (Vol. Eds.) and W. Damon (Ed.), *Handbook of child psychology. Vol. 2. Cognition, perception, and language (5th ed.)* (pp. 801–850). New York, NY, US: Wiley.

De Kemp, R. T., Scholte, R. J., Overbeek, G., & Engels, R. E. (2006). Early adolescent delinquency: The role of parents and best friends. *Criminal Justice and Behavior*, *33*, 488-510.

Dishion, T. J., & Andrews, D. W. (1995). Preventing escalation in problem behaviors with high-risk young adolescents: Immediate and 1-year outcomes. *Journal of Consulting and Clinical Psychology*, *63*, 538-548.

Dishion, T. J., & McMahon, R. J. (1998). Parental monitoring and the prevention of child and adolescent problem behavior: A conceptual and empirical formulation. *Clinical Child and Family Psychology Review*, *1*, 61-75.

Dishion, T. J., Nelson, S. E., & Bullock, B. (2004). Premature adolescent autonomy: Parent disengagement and deviant peer process in the amplification of problem behaviour. *Journal of Adolescence*, *27*, 515-530.

Dishion, T. J., Nelson, S. E., & Kavanagh, K. (2003). The family check-up with high-risk young adolescents: Preventing early-onset substance use by parent monitoring. *Behavior Therapy*, *34*, 553-571.

Drabick, D. G. (2009). Can a developmental psychopathology perspective facilitate a paradigm shift toward a mixed categorical–dimensional classification system?. *Clinical Psychology: Science and Practice*, *16*, 41-49.

Droomers, M. M., Schrijvers, C. M., Casswell, S. S., & Mackenbach, J. P. (2003). Occupational level of the father and alcohol consumption during adolescence; patterns and predictors. *Journal of Epidemiology and Community Health*, *57*, 704-710.

Dodge, K. A., Pettit, G. S., & Bates, J. E. (1994). Socialization mediators of the relation between socioeconomic status and child conduct problems. *Child Development*, *65*, 649-665.

Drabick, D. A. G. (2009). Can a developmental psychopathology perspective facilitate a paradigm shift toward a mixed categorical-dimensional classification system? *Clinical Psychology Science and Practice, 16,* 41-49.

Drabick, D. A. G., Gadow, K. D., Carlson, G. A., & Bromet, E. J. (2004). ODD and ADHD symptoms in Ukrainian children: External validators and comorbidity. *Journal of the American Academy of Child and Adolescent Psychiatry*, *43*, 735-743.

Drabick, D. A. G., Gadow, K. D., & Loney, J. (2007). Source-specific oppositional defiant disorder: Comorbidity and risk factors in referred elementary school boys. *Journal of the American Academy of Child and Adolescent Psychiatry*, *26,* 92-101.

Eiden, R. D., Edwards, E. P., & Leonard, K. E. (2007). A conceptual model for the development of externalizing behavior problems among kindergarten children of alcoholic families: Role of parenting and children's self-regulation. *Developmental Psychology*, *43*, 1187-1201.

Eisenberg, N., Zhou, Q., Spinrad, T. L., Valiente, C., Fabes, R. A., & Liew, J. (2005). Relations among positive parenting, children's effortful control, and externalizing problems: A three□wave longitudinal study. *Child Development*, *76*, 1055-1071.

Enders, C. K. (2001). A primer on maximum likelihood algorithms available for use with missing data. *Structural Equation Modeling*, *8*, 128-141.

Fletcher, A. C., Darling, N. E., & Steinberg, L. (1995). Parental monitoring and peer influences on adolescent substance use. In J. McCord (Ed.), Coercion and punishment in long-term perspectives (pp. 259 –271). Cambridge, England: Cambridge University Press.

Fosco, G. M., Stormshak, E. A., Dishion, T. J., & Winter, C. E. (2012). Family relationships and parental monitoring during middle school as predictors of early adolescent problem behavior. *Journal of Clinical Child and Adolescent Psychology*, *41*, 202-213.

Frick, P. J., Christian, R. E., & Wooton, J. M. (1999). Age trends in association between parenting practices and conduct problems. *Behavior Modification*, *23*, 106-128

Furman, W., & Buhrmester, D. (1992). Age and sex differences in perceptions of networks of personal relationships. *Child Development*, *63*, 103-115.

Gault-Sherman, M. (2012). It's a two-way street: The bidirectional relationship between parenting and delinquency. *Journal of Youth and Adolescence*, *41*, 121-145.

Geier, C. F. (2013). Adolescent cognitive control and reward processing: Implications for risk taking and substance use. *Hormones and Behavior*, *64*, 333-342.

Gerdes, A. C., Hoza, B., Arnold, L. E., Pelham, W. E., Swanson, J. M., Wigal, T., & Jensen, P. S. (2007). Maternal depressive symptomatology and parenting behavior: Exploration of possible mediators. *Journal of Abnormal Child Psychology*, *35*(5), 705-714.

Giancola, P. R. (2000). Temperament and antisocial behavior in preadolescent boys with or without a family history of a substance use disorder. *Psychology of Addictive Behaviors*, *14*, 56-68.

Goodman, S. H., & Brumley, H. (1990). Schizophrenic and depressed mothers: Relational deficits in parenting. *Developmental Psychology*, *26*, 31-39.

Gottman, J. M., & Mettetal, G. (1986). Speculations about social and affective development: Friendship and acquaintanceship through adolescence. In J. M. Gottman, J. G. Parker (Eds.) , *Conversations of friends: Speculations on affective development* (pp. 192-237). New York, NY, US: Cambridge University Press.

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology*, *60,* 549-576.

Greening, L., Stoppelbein, L., & Luebbe, A. (2010). The moderating effects of parenting styles

on African-American and Caucasian children's suicidal behaviors. *Journal of Youth and Adolescence*, *39*, 357-369.

Greenley, R., Holmbeck, G. N., & Rose, B. M. (2006). Predictors of Parenting Behavior Trajectories Among Families of Young Adolescents with and without Spina Bifida. *Journal of Pediatric Psychology*, *31*, 1057-1071.

Grusec, J. E., & Goodnow, J. J. (1994). Impact of parental discipline methods on the child's internalization of values: A reconceptualization of current points of view. *Developmental Psychology*, *30*, 4-19.

Halgunseth, L. C., Perkins, D. F., Lippold, M. A., & Nix, R. L. (2013). Delinquent-oriented attitudes mediate the relation between parental inconsistent discipline and early adolescent behavior. *Journal of Family Psychology*, *27*, 293-302.

Harvey, E., Stoessel, B., & Herbert, S. (2011). Psychopathology and parenting practices of parents of preschool children with behavior problems. *Parenting: Science and Practice*, *11*, 239-263.

Hastings, P. D., Zahn-Waxler, C., Robinson, J., Usher, B., & Bridges, D. (2000). The development of concern for others in children with behavior problems. *Developmental Psychology*, *36*, 531-546.

Heckman, J. J. (2008). Schools, skills, and synapses. *Economic inquiry*, *46*, 289-324.

Hill, N. E. (1995). The relationship between family environment and parenting style: A preliminary study of African American families. *Journal of Black Psychology*, *21*, 408-423.

Hill, N. E., Bromell, L., Tyson, D. F., & Flint, R. (2007). Developmental commentary: Ecological perspectives on parental influences during adolescence. *Journal of Clinical Child and Adolescent Psychology*, *36*, 367-377.

Hipwell, A., Keenan, K., Kasza, K., Loeber, R., Stouthamer-Loeber, M., & Bean, T. (2008). Reciprocal influences between girls' conduct problems and depression, and parental punishment and warmth: A six year prospective analysis. *Journal of Abnormal Child Psychology*, *36*, 663-677.

Hirsh-Pasek, K., & Burchinal, M. (2006). Mother and caregiver sensitivity over time: Predicting language and academic outcomes with variable- and person-centered approaches. *Merrill-Palmer Quarterly*, *52*, 449–485.

Hoeve, M., Dubas, J., Eichelsheim, V. I., van der Laan, P. H., Smeenk, W., & Gerris, J. M. (2009). The relationship between parenting and delinquency: A meta-analysis. *Journal of Abnormal Child Psychology: An Official Publication of the International Society for Research in Child and Adolescent Psychopathology*, *37*, 749-775.

Hoeve, M., Dubas, J., Gerris, J. M., van der Laan, P. H., & Smeenk, W. (2011). Maternal and paternal parenting styles: Unique and combined links to adolescent and early adult delinquency. *Journal of Adolescence*, *34*, 813-827.

Hoffmann, J. P., & Bahr, S. J. (2014). Parenting style, religiosity, peer alcohol use, and adolescent heavy drinking. *Journal of Studies on Alcohol and Drugs*, *75*, 222.

Hops, H., Davis, B., Leve, C., & Sheeber, L. (2003). Cross-generational transmission of aggressive parent behavior: A prospective, mediational examination. *Journal of Abnormal Child Psychology*, *31*, 161-169.

Huh, D., Tristan, J., Wade, E., & Stice, E. (2006). Does problem behavior elicit poor parenting? A prospective study of adolescent girls. *Journal of Adolescent Research*, *21*, 185-204.

Jacob, T., Moser, R. P., Windle, M., Loeber, R., & Stouthamer-Loeber, M. (2000). A new measure of parenting practices involving preadolescent and adolescent-aged children. *Behavior Modification*, *24*, 611-634.

Jones, D. J., Forehand, R., Brody, G., & Armistead, L. (2003). Parental monitoring in African American, single mother-headed families: An ecological approach to the identification of predictors. *Behavior Modification*, *27*, 435-457.

Katainen, S., Raikkonen, K., Keskivaara, P., & Keltikangas-Ja¨rvinen, L. (1999). Maternal child-rearing attitudes and role satisfaction and children's temperament as antecedents of adolescent depressive tendencies: Follow-up study of 6-to 15-year-olds. *Journal of Youth and Adolescence*, *28*, 139–163.

Keijsers, L., Frijns, T., Branje, S. J. T., & Meeus, W. (2009). Developmental links of adolescent disclosure parental solicitation and control with delinquency: Moderation by parental support. *Developmental Psychology*, *45*, 1314–1327.

Keijsers, L., Loeber, R., Branje, S., & Meeus, W. (2012). Parent□child relationships of boys in different offending trajectories: a developmental perspective. *Journal of Child Psychology and Psychiatry*, *53*, 1222-1232.

Keijsers, L., & Poulin, F. (2013). Developmental changes in parent–child communication throughout adolescence. *Developmental Psychology*, *49*, 2301-2308.

Kershaw, T., Murphy, A., Lewis, J., Divney, A., Albritton, T., Magriples, U., & Gordon, D. (2014). Family and relationship influences on parenting behaviors of young parents. *Journal of Adolescent Health*, *54*, 197-203.

Khaleque, A., & Rohner, R. P. (2002). Perceived parental acceptance-rejection and psychological adjustment: A meta-analysis of cross-cultural and intracultural studies. *Journal of Marriage and Family*, *64*, 54-64.

Kim, H. K., Pears, K. C., Fisher, P. A., Connelly, C. D., & Landsverk, J. A. (2010). Trajectories of maternal harsh parenting in the first 3 years of life. *Child Abuse & Neglect*, *34*, 897-906.

Kirisci, L., Tarter, R. Mezzich, A., & Reynolds, M. (2008). Screening current and future diagnosis of psychiatric disorders using the revised drug use screening inventory. *The American Journal of Drug and Alcohol Abuse, 34*, 653-665.

Kliewer, W., Fearnow, M. D., & Miller, P. A. (1996). Coping socialization in middle childhood: Tests of maternal and paternal influences. *Child Development*, *67*, 2339-2357.

Kochanska, G., Friesenborg, A. E., Lange, L. A., & Martel, M. M. (2004). Parents' personality and infants' temperament as contributors to their emerging relationship. *Journal of Personality and Social Psychology*, *86*, 744–759.

Krishnakumar, A., & Buehler, C. (2000). Interparental conflict and parenting behaviors: A meta-analytic review. *Family Relations*, *49*, 25-44.

Kumpfer, K. L., & Alvarado, R. (2003). Family-strengthening approaches for the prevention of youth problem behaviors. *American Psychologist*, *58*, 457-465.

Kumpfer, K. L., & Turner, C. W. (1990). The social ecology model of adolescent substance abuse: Implications for prevention. *International Journal of the Addictions*, *25*, 435-463.

Kyrios, M., & Prior, M. (1990). Temperament, stress and family factors in behavioural adjustment of 3–5-year-old children. *International Journal of Behavioral Development*, *13*, 67-93.

Ladd, G. W., & Pettit, G. S. (2002). Parenting and the development of children's peer relationships. In M. H. Bornstein (Ed.) , *Handbook of parenting: Vol. 5: Practical issues in parenting (2nd ed.)* (pp. 269-309). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Lahey, B. B., Gordon, R. A., Loeber, R., Stouthamer-Loeber, M., & Farrington, D. P. (1999). Boys who join gangs: A prospective study of predictors of first gang entry. *Journal of Abnormal Child Psychology*, *27*, 261-276.

Laird, R. D., Criss, M. M., Pettit, G. S., Dodge, K. A., & Bates, J. E. (2008). Parents' monitoring knowledge attenuates the link between antisocial friends and adolescent delinquent behavior. *Journal of Abnormal Child Psychology: An Official Publication of the International Society for Research in Child and Adolescent Psychopathology*, *36*, 299-310.

Laird, R. D., Pettit, G. S., Bates, J. E., & Dodge, K. A. (2003). Parents' monitoring-relevant knowledge and adolescents' delinquent behavior: Evidence of correlated developmental changes and reciprocal influences. *Child Development*, *74*, 752-768.

Lang, A. R., Pelham, W. E., Atkeson, B. M., & Murphy, D. A. (1999). Effects of alcohol intoxication on parenting behavior in interactions with child confederates exhibiting normal or deviant behaviors. *Journal of Abnormal Child Psychology*, *27*, 177-189.

Lansford, J. E., Criss, M. M., Laird, R. D., Shaw, D. S., Pettit, G. S., Bates, J. E., & Dodge, K. A. (2011). Reciprocal relations between parents' physical discipline and children's externalizing behavior during middle childhood and adolescence. *Development and Psychopathology*, *23*, 225-238.

Lansford, J. E., Dodge, K. A., Pettit, G. S., Bates, J. E., Crozier, J., & Kaplow, J. (2002). A

12-year prospective study of the long-term effects of early child physical maltreatment on psychological, behavioral, and academic problems in adolescence. *Archives of Pediatrics and Adolescent Medicine*, *156*, 824-830.

Larson, R.W., Richards, M. H., Moneta, G., Holmbeck, G., and Duckett, E. (1996). Changes in adolescent's daily interactions with their families from ages 10 to 18: Disengagement and transformation. *Developmental Psychology*, *32*, 744–754.

Laukkanen, J., Ojansuu, U., Tolvanen, A., Alatupa, S., & Aunola, K. (2014). Child's difficult temperament and mothers' parenting styles. *Journal of Child and Family Studies*, *23*, 312-323.

Laursen, B., & Collins, W. (2004). Parent-child communication during adolescence. In A. L. Vangelisti (Ed.), *Handbook of family communication* (pp. 333-348). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

LeCuyer-Maus, E. A., & Houck, G. M. (2002). Mother-toddler interaction and the development of self-regulation in a limit-setting context. *Journal of Pediatric Nursing*, *17*, 184-200.

Ledoux, S., Miller, P., Choquet, M., & Plant, M. (2002). Family structure, parent-child relationships, and alcohol and other drug use among teenagers in France and the United Kingdom. *Alcohol and Alcoholism*, *37*, 52-60.

Lee, E. H., Zhou, Q., Eisenberg, N., & Wang, Y. (2013). Bidirectional relations between temperament and parenting styles in Chinese children. *International Journal of Behavioral Development*, *37*, 57–67.

Lengua, L. J., Sadowski, C. A., Friedrich, W. N., & Fisher, J. (2001). Rationally and empirically derived dimensions of children's symptomatology: Expert ratings and confirmatory factor analyses of the CBCL. *Journal of Consulting and Clinical Psychology*, *69*, 683-698.

Little, R. J. A., & Rubin, D. B. (2002). *Statistical analyses with missing data (2nd ed.).* New York, NY, US: Wiley.

Loeber, R., Farrington, D. P., Stouthamer-Loeber, M., & Van Kammen, W. B. (1998). *Antisocial behavior and mental health problems: Explanatory factors in childhood and adolescence*. Psychology Press.

Loeber, R., Green, S. M., Keenan, K., & Lahey, B. B. (1995). Which boys will fare worse? Early predictors of the onset of conduct disorder in a six-year longitudinal study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *34*, 499-509.

Lovejoy, M. (1991). Maternal depression: Effects on social cognition and behavior in parent-child interactions. *Journal of Abnormal Child Psychology*, *19*, 693-706.

Lovejoy, M., Graczyk, P. A., O'Hare, E., & Neuman, G. (2000). Maternal depression and parenting behavior: A meta-analytic review. *Clinical Psychology Review*, *20*, 561-592.

Luyckx, K., Tildesley, E. A., Soenens, B., Andrews, J. A., Hampson, S. E., Peterson, M., & Duriez, B. (2011). Parenting and trajectories of children's maladaptive behaviors: A 12-year prospective community study. *Journal of Clinical Child and Adolescent Psychology*, *40*, 468-478.

Luna, B., Thulborn, K. R., Munoz, D. P., Merriam, E. P., Garver, K. E., Minshew, N. J., ... & Sweeney, J. A. (2001). Maturation of widely distributed brain function subserves cognitive development. *Neuroimage*, *13*, 786-793.

Maccoby, E., & Martin, J. (1983). Socialization in the context of the family: Parent-child interaction. In E. M. Hetherington (Ed.), P. H. Mussen (Series Ed.), *Handbook of child psychology: Vol. 4. Socialization, personality, and social development* (pp. 1-101). New York, NY, US: Wiley.

Maccoby, E. E., Snow, M. E., & Jacklin, C. N. (1984). Children's dispositions and mother–child interaction at 12 and 18 months: A short-term longitudinal study. *Developmental Psychology*, *20*, 459–472.

Manongdo, J. A., & Ramírez García, J. I. (2011). Maternal parenting and mental health of Mexican American youth: a bidirectional and prospective approach. *Journal of Family Psychology*, *25*, 261.

Manuel, J. I., Martinson, M. L., Bledsoe-Mansori, S. E., & Bellamy, J. L. (2012). The influence of stress and social support on depressive symptoms in mothers with young children. *Social Science and Medicine*, *75*, 2013-2020.

Marshal, M. P., & Chassin, L. (2000). Peer influence on adolescent alcohol use: The moderating role of parental support and discipline. *Applied Developmental Science*, *4*, 80 – 88.

Martínez, I., & García, J. (2008). Internalization of values and self-esteem among Brazilian teenagers from authoritative, indulgent, authoritarian, and neglectful homes. *Family Therapy*, *35*, 43-59.

Mason, C. A., Cauce, A., Gonzales, N., & Hiraga, Y. (1996). Neither too sweet nor too sour: Problem peers, maternal control, and problem behavior in African American adolescents. *Child Development*, *67*, 2115-2130.

Masyn, K. E., Henderson, C. E., & Greenbaum, P. E. (2010). Exploring the latent structures of psychological constructs in social development using the dimensional/categorical spectrum. *Social Development, 19*, 470-493.

McGroder, S. M. (2000). Parenting among low-income, African American single mothers with preschool-age children: Patterns, predictors and developmental correlates. *Child*

Development, *71*, 752–771.

McLachlan, G. J., & Peel, D. (2000). *Finite mixture models*. New York, NY, US: Wiley.

Miller, E. K., & Cohen, J. D. (2001). An integrative theory of prefrontal cortex function. *Annual Review of Neuroscience*, *24*, 167-202.

Montgomery, C., Fisk, J. E., & Craig, L. (2008). The effects of perceived parenting style on the propensity for illicit drug use: The importance of parental warmth and control. *Drug and Alcohol Review*, *27*, 640-649.

Moos, R. H. (1990). Conceptual and empirical approaches to developing family-based assessment procedures: Resolving the case of the Family Environment Scale. *Family Process*, *29*, 199-208.

Moos, R. H., & Moos, B. S. (1994). *Family Environment Scale manual* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.

Muthén, L. K., & Muthén, B. O. (1998–2014). *Mplus user's guide. (7th ed.)*. Los Angeles, CA, US: Muthén & Muthén.

Muthén, B., & Muthén, L.K. (2000). Integrating person-centered and variable-centered analysis. Growth mixture-modeling with latent trajectory classes. *Alcoholism: Clinical and Experimental Research, 24,* 882-891.

Nylund, K., Bellmore, A., Nishina, A., & Graham, S. (2007). Subtypes, severity, and structural stability of peer victimization: What does latent class analysis say? *Child Development, 78,* 1706-1722.

Östberg, M., Hagekull, B., & Hagelin, E. (2007). Stability and prediction of parenting stress. *Infant and Child Development*, *16*, 207-223.

Pardini, D. A., & Loeber, R. (2008). Interpersonal callousness trajectories across adolescence:

Early social influences and adult outcomes. *Criminal Justice and Behavior*, *35*, 173-196.

Parker, J. G., and Gottman, J. M. (1989). Social and emotional development in a relational context: Friendship interactions from early childhood to adolescence. In T. J. Berndt and G. W. Ladd (Eds.), *Peer relationships in child development* (pp. 95–131). New York, NY, US: Wiley.

Petronio, S. (2002). *Boundaries of privacy: Dialectics of disclosure*. Albany, NY, US: State University of New York Press.

Pettit, G. S., Keiley, M. K., Laird, R. D., Bates, J. E., & Dodge, K. A. (2007). Predicting the developmental course of mother-reported monitoring across childhood and adolescence from early proactive parenting, child temperament, and parents' worries. *Journal of Family Psychology*, *21*, 206-217.

Ponnet, K., Mortelmans, D., Wouters, E., Van Leeuwen, K., Bastaits, K., & Pasteels, I. (2013). Parenting stress and marital relationship as determinants of mothers' and fathers' parenting. *Personal Relationships*, *20*, 259-276.

Putnam, S. P., Sanson, A. V., & Rothbart, M. K. (2002). Child temperament and parenting. In M. H. Bornstein (Ed.) , *Handbook of parenting: Vol. 1: Children and parenting (2nd ed.)* (pp. 255-277). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Roskam, I., & Meunier, J. (2012). The determinants of parental childrearing behavior trajectories: The effects of parental and child time-varying and time-invariant predictors. *International Journal of Behavioral Development*, *36*, 186-196.

Rothbaum, F., & Weisz, J. R. (1994). Parental caregiving and child externalizing behavior in non-clinical samples: A meta-analysis. *Psychological Bulletin*, *116*, 55−74.

Rubin, K. H., Nelson, L. J., Hastings, P., & Asendorpf, J. (1999). The transaction between parents' perceptions of their children's shyness and their parenting styles. *International Journal of Behavioral Development*, *23*, 937–958.

Schroeder, V. M., & Kelley, M. L. (2009). Associations between family environment, parenting practices, and executive functioning of children with and without ADHD. *Journal of Child and Family Studies*, *18*, 227-235.

Schwartz, G. (1978). Estimating the dimensions of a model. *Annals of Statistics, 6,* 461-464.

Sclove, S.L. (1987). Application of model-selection criteria to some problems in multivariate analysis. *Psychometrika, 52*, 333-343.

Segal, D. L., Hersen, M. & Van Hasselt, V. B. (1994). Reliability of the structured clinical interview for DSM-III-R; An evaluative review. *Comprehensive Psychiatry*, *35*, 316-327.

Sentse, M., Veenstra, R., Lindenberg, S., Verhulst, F. C., & Ormel, J. (2009). Buffers and risks in temperament and family for early adolescent psychopathology: Generic, conditional, or domain-specific effects? The trails study. *Developmental Psychology*, *45*, 419-430.

Serbin, L. A., & Stack, D. (1998). Introduction to the special section: Studying intergenerational continuity and the transfer of risk. *Developmental Psychology*, *34*, 1159–1161.

Siebenbruner, J., Englund, M. M., Egeland, B., & Hudson, K. (2006). Developmental antecedents of late adolescence substance use patterns. *Development and Psychopathology*, *18*, 551-571.

Simons, L. G., & Conger, R. D. (2007). Linking mother–father differences in parenting to a typology of family parenting styles and adolescent outcomes. *Journal of Family Issues*, *28*, 212-241.

Simmons, R. L., Wu, C., Conger, R. D., & Lorenz, F. O. (1994). Two routes to delinquency:

Differences between early and late starters in the impact of parenting and deviant peers. *Criminology*, *32*, 247-276.

Smith, C. L. (2010). Multiple determinants of parenting: Predicting individual differences in maternal parenting behavior with toddlers. *Parenting: Science and Practice*, *10*, 1-17.

Spitzer, R. L., Williams, J. B., Gibbon, M., & First, M. B. (1990). *User's guide for the structured clinical interview for DSM-III-R: SCID*. Washington, DC: American Psychiatric Association.

Spitzer, R. L., Williams, J. B., Gibbon, M., & First, M. B. (1992). The structured clinical interview for DSM-III-R (SCID): I: history, rationale, and description. *Archives of General Psychiatry*, *49*, 624-629.

Spoth, R. L., Redmond, C., & Shin, C. (2001). Randomized trial of brief family interventions for general populations: Adolescent substance use outcomes 4 years following baseline. *Journal of Consulting and Clinical Psychology*, *69*, 627-642.

Sroufe, L., & Rutter, M. (1984). The domain of developmental psychopathology. *Child Development*, *55*, 17-29.

Steinberg, L. (2001). We know some things: Parent–adolescent relationships in retrospect and prospect. *Journal of Research on Adolescence*, *11*, 1-19.

Steinberg, L., Blatt-Eisengart, I., & Cauffman, E. (2006). Patterns of competence and adjustment among adolescents from authoritative, authoritarian, indulgent, and neglectful homes: A replication in a sample of serious juvenile offenders. *Journal of Research on Adolescence*, *16*, 47-58.

Steinberg, L., & Silk, J. S. (2002). Parenting adolescents. In M. H. Bornstein (Ed.) , *Handbook of parenting: Vol. 1: Children and parenting (2nd ed.)* (pp. 103-133). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Steinberg, L., and Silverberg, S. (1986). The vicissitudes of autonomy in early adolescence. *Child Development*, *57*, 841–851.

Stouthamer-Loeber, M., Loeber, R., Wei, E., Farrington, D. P., & Wikström, P. O. H. (2002). Risk and promotive effects in the explanation of persistent serious delinquency in boys. *Journal of Consulting and Clinical Psychology*, *70*, 111-123.

Sussman, S., Dent, C., McAdams, L., Stacy, A., Burton, D., and Flay, B. (1994). Group self-identification and adolescent cigarette smoking: A 1-year prospective study. *Journal of Abnormal Psychology*, *103*, 576–580.

Tafarodi, R. W., Wild, N., & Ho, C. (2010). Parental authority, nurturance, and two-dimensional self-esteem. *Scandinavian Journal of Psychology*, *51*, 294-303.

Tarter, R. E., Kirisci, L., Mezzich, A., Cornelius, J. R., Pajer, K., Vanyukov, M., & ... Clark, D. (2003). Neurobehavioral disinhibition in childhood predicts early age at onset of substance use disorder. *The American Journal of Psychiatry*, *160*, 1078-1085.

Tarter, R., Mezzich, A., Kirisci, L., & Kaczynski, N. (1994). Reliability of the Drug Use Screening Inventory among adolescent alcoholics. *Journal of Child and Adolescent Substance Abuse, 3*, 25-36.

Tarter, R. E., & Vanyukov, M. M. (2001). Introduction: Theoretical and operational framework for research into the etiology of substance use disorders. *Journal of Child and Adolescent Substance Abuse*, *10*, 1-12.

Thomas, A., & Chess, S. (1977). *Temperament and development*. Oxford, England: Brunner/Mazel.

Tildesley, E. A., & Andrews, J. A. (2008). The development of children's intentions to use alcohol: Direct and indirect effects of parent alcohol use and parenting behaviors. *Psychology of Addictive Behaviors*, *22*, 326-339.

van Bakel, H. A., & Riksen-Walraven, J. (2002). Parenting and development of one-year-olds: Links with parental, contextual, and child characteristics. *Child Development*, *73*, 256-273.

Van Ryzin, M. J., Fosco, G. M., & Dishion, T. J. (2012). Family and peer predictors of substance use from early adolescence to early adulthood: An 11-year prospective analysis. *Addictive Behaviors*, *37*, 1314-1324.

Whaley, S. E., Pinto, A., & Sigman, M. (1999). Characterizing interactions between anxious mothers and their children. *Journal of Consulting and Clinical Psychology*, *67*, 826-836.

Williams, J. B., Gibbon, M., First, M. B., & Spitzer, R. L. (1992). The structured clinical interview for DSM-III-R (SCID): II. multisite test-retest reliability. *Archives of General Psychiatry*, *49*, 630-636.

Williams, L., & Steinberg, L. (2011). Reciprocal relations between parenting and adjustment in a sample of juvenile offenders. *Child Development*, *82*, 633-645.

Wills, T., & Cleary, S. D. (1996). How are social support effects mediated? A test with parental support and adolescent substance use. *Journal of Personality and Social Psychology*, *71*, 937-952.

Wills, T., Resko, J. A., Ainette, M. G., & Mendoza, D. (2004). Role of parent support and peer support in adolescent substance use: A test of mediated effects. *Psychology of Addictive Behaviors*, *18*, 122-134.

Windle, M. (1991). The difficult temperament in adolescence: Associations with substance use, family support, and problem behaviors. *Journal of Clinical Psychology*, *47*, 310-315.

Windle, M. (1992). Revised Dimensions of Temperament Survey (DOTS—R): Simultaneous group confirmatory factor analysis for adolescent gender groups. *Psychological Assessment*, *4*, 228-234.

Wolff, K. E., & Munley, P. H. (2012). Exploring the relationships between White racial consciousness, feminist identity development and family environment for White undergraduate women. *College Student Journal*, *46*, 283-307.

Woodruff-Borden, J., Morrow, C., Bourland, S., & Cambron, S. (2002). The behavior of anxious parents: Examining mechanisms of transmission of anxiety from parent to child. *Journal of Clinical Child and Adolescent Psychology*, *31*, 364-374.

Zahn-Waxler, C., Duggal, S., & Gruber, R. (2002). Parental psychopathology. In M. H. Bornstein (Ed.) , *Handbook of parenting: Vol. 4: Social conditions and applied parenting (2nd ed.)* (pp. 295-327). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Zhou, Q., Eisenberg, N., Wang, Y., & Reiser, M. (2004). Chinese children's effortful control and dispositional anger/frustration: Relations to parenting styles and children's social functioning. *Developmental Psychology*, *40*, 352–366.