Chapter 7
Tracking the Multiple Pathways of Parent and Family Influence on Disruptive Behavior Disorders

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Parenting and related family characteristics are perhaps the most studied and documented contributors to risk for disruptive behavior disorders among children. They are also the most salient protective factor against such problems. Family-focused interventions (both preventive and treatment) are among the most effective for disruptive behavior disorders (Dishion & McMahon, 1998). Indeed, their effectiveness underscores the importance of family factors in the cause and solutions for this problem.

Parenting is a broad construct encompassing multiple components—and the focus of a voluminous research literature (Parke & Buriel, 1998). Within this literature, there is considerable variation in how family relationship characteristics have been conceptualized and studied, yet remarkably little attention to the specifics of their interdependence or conceptual relation. Parenting practices and family relationship qualities are also related to other familial influences, such as genetic transmission of personality and behavioral characteristics of the parents, the extended family, and familial cross-generational consistency in behavior and risk and protective influences, as well as the social context of childrearing and family development (see Parke & Buriel, 1998, for a cogent summary of the broad ecological perspective). Within each of these broad domains, researchers have formulated elemental constructs and theories of interrelations of these elements and effects on

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development, risk, and expression of problems. Some of these constructs have considerable reference and use, but many arose because of specialized interests and only have meaning among a small set of researchers. A major issue of interest is the distinction between genetic influence and parenting influence on disruptive behavior disorders. The possibility of genetic influence tempers many reported findings on parenting in the literature because these two influences are correlated. Furthermore, discoveries of gene-by-environment interactions indicate that each must be considered in tandem with the other.

Encompassing and summarizing all or even most of the essential findings of the field is well beyond a single chapter and much broader than is pertinent to this volume. However, we do attempt to locate within a broad biopsychosocial and ecological perspective important avenues for parental and family influence on disruptive behavior disorder. To do so, we first describe some of the key conceptual considerations in understanding how parenting and family relationship characteristics can influence disruptive behavior problems. Next, we describe the current state of knowledge about several of the key characteristics or processes of influence. In the final section we outline important areas of further study, including an agenda for moving the field forward and improving our ability to determine best interventions to prevent and treat and perhaps lead to cure of disruptive behavior disorders.

Parents and Families as Developmental Influences on Disruptive Behavior Risk

The multiple avenues of influence for risk for disruptive behavior disorders add complexity to any attempt to understand this process. There is not, and cannot be, one single cause or even a primary or more critical cause of disruptive behavior disorders (see Academy of Medical Sciences, 2007). The multifaceted origins also mean that the mix and balance of influences can vary from individual to individual. Thus, models can serve for general description, but they may not be similarly applicable to a given subgroup or person. Yet to be established are processes that capture the multiple avenues of parental influence on disruptive behavior, the specificity and distinction of these processes, and the conditions under which influence on subgroups or individuals varies.

Characterizing Disruptive Behavior

Disruptive behavior is far from homogenous or easily characterized, and many of the characteristics of the disorder are common in the overall population. Even individuals who evidence an identifiable clinical pattern may present different symptoms of the disruptive behavior disorder (Cicchetti, 2006; see Carter et al. in this volume, and Frick et al. in this volume). The relation of these distinctions to

parenting and family influences and to the avenues for such influence also varies. Thus, for example, antisocial behavior associated with psychopathic features has a higher heritability (i.e., a stronger genetic liability) than that not associated with psychopathy (Viding, Larsson, & Jones, 2009). It also carries a poorer outcome and probably a different response to family influences (Dadds & Rhodes, 2009). Similarly, antisocial behavior accompanied by overactivity/inattention or attention deficit disorder with hyperactivity (ADHD) also involves a stronger genetic component than antisocial behavior without these features (Silberg et al., 1996). Nevertheless, it appears that the psychopathy is not due to associated overactivity/inattention (Viding et al., 2009). In addition, molecular genetic research has shown that COMT (Catechol-O-methyltransferase gene) is not associated with either ADHD or antisocial behavior as such, but is significantly associated with antisocial behavior in individuals with ADHD (Caspi et al., 2004).

Numerous studies have shown the strong co-occurrence of oppositional-defiant disorder (ODD) and conduct disorder; it is also clear that there is a substantial shared genetic liability (Kimonis & Frick, 2010). On the other hand, there is growing evidence that the irritability component of ODD is different in its association with affective disturbance and suicidal behavior (Pickles et al., 2010; Stringaris, Cohen, Pine, & Leibenluft, 2009; Stringaris, Maughan, & Goodman, 2010). These findings underscore the limitation of these categorizations in distinguishing causes, even when they can be differentially related to various family contributions.

Developmentally framed typologies provide seemingly more useful distinctions, although the findings testing their validity are still limited and not always consistent. Thus, Moffitt (1993) has argued for a split between life course-persistent antisocial behavior (meaning a variety that begins in childhood and persists into adult life) and adolescence-limited antisocial behavior. It is well established that the former is much more likely to be associated with neurodevelopmental impairment (Odgers, Caspi, et al., 2007) and with family dysfunction (Odgers, Milne, et al., 2007). However, it remains unclear whether the difference is categorical or dimensional (i.e., whether adolescent-limited antisocial behavior involves no family influences or only different influence, or whether it involves the same family features but with a weaker association). Barker and Maughan (2009) found that early maternal anxiety, harsh parenting, and child activity all differentiated children with early-onset persistent conduct problems from those with childhood-limited conduct problems.

In another approach, Tremblay (2003) argued for a distinction between physically aggressive and nonaggressive varieties of antisocial behavior. Although there is much evidence to support this differentiation, it is not known whether the forms of aggression differ with respect to family influences. In a similar vein, Wakschlag, Tolan, and Leventhal (2010) suggested that disruptive behavior disorders could be differentiated by key symptoms along dimensions of aggression, noncompliance, temper loss or anger, and low concern for others (see both Carter et al. and Frick et al. in this volume for further deliberation).

Clearly, the extent of and multidimensionality of family influences on disruptive behaviors are complex and may vary by behavior of interest. As we consider other further elaborations that are important in considering family influences, this initial

complexity may be important for how specific research endeavors might be formulated as well as how theoretical linkage of forms of influence would be organized.

A Multisystem, Transactional, Developmental Process of Effects

Another complicating factor in the interplay of timing and variety of family influences on disruptive behaviors adds is the bidirectionality of relationships: parents influence children and children influence parents (Kerr, Stattin, & Burk, 2010; Laible & Thompson, 2007; Pettit & Arsiwalla, 2008). Bidirectionality has been suggested using a variety of research strategies including experimental designs (Anderson, Lytton, & Romney, 1986) and the effects on parents of changing child behavior (Brunk & Henggeler, 1984; Schachar, Taylor, Wieselberg, Thorley, & Rutter, 1987).

As Parke and Buriel (1998) note, an interactive systemic perspective is needed to relate components and the overall influence of families on child development. Yet, as they further delineate, it is important to attend to the individual, dyadic, and multiperson levels of influence as well. That is, individual characteristics can evoke different reactions or responses to environmental influences. Similarly, dyadic relationships between parents, and between each parent or parent figure and a child, have specific influences on development that are not simply a reflection of the family system or reducible to the sum of the two personalities in the dyad. For example, Cowan, Cowan, Schulz, and Heming (1994) documented that marital interaction quality, particularly conflict and hostility level, predicted child risk for externalizing symptoms. Family discord and unresolved conflict, particularly of parents, are other examples of this type of influence. Rutter (1971) compared happy and unhappy marital separations in predicting antisocial behavior in the child, finding that risk for antisocial behavior did not increase in happy separations. Similarly, the risk for antisocial behavior was much greater in the case of divorce than parental death. Fergusson, Horwood, and Lynskey (1992), using the Christchurch longitudinal study, found that risks for behavior problems were much more strongly associated with family discord than family separation. Mother-child and father-child relationships may also have differing influences. For example, it appears paternal influences on risk may be tied to the quality of the marital relationship more than maternal parenting influences (Belsky, Youngblade, Rovine, & Volling, 1991). Also, the impact of paternal involvement may differ from maternal involvement (DeGarmo, 2010).

Family influences are also irrevocably intertwined with social context (Rutter, 1999). Practices, values, beliefs, and other social influences of the overall society also affect how family influences disruptive behavior risk. For example, conditions of poverty, including fewer parenting resources and greater threats to child well-being, make effective parenting more difficult (Conger, Neppl, Kim, & Scaramella, 2003). In addition, it is possible that family influences differ for children growing up in a high-risk neighborhood (Peeples & Loeber, 1994; Stouthamer-Loeber, Loeber, Wei, Farrington, & Wikstroem, 2002; Tolan, Gorman-Smith, & Henry, 2003).

For example, close parental supervision and control may be more necessary when the neighborhood risks are high (Gorman-Smith, Henry, & Tolan, 2004).

There is also uncertainty from empirical information to date about the variation by child gender or ethnic and cultural group in parenting and other family factors as effects on disruptive behavior disorders (see Loeber et al. in this volume for a discussion of the gender patterns and contributors issues). For example, analysis of Dunedin longitudinal data suggests that, rather than differential family influences, it is the greater frequency of neurodevelopmental impairment in males that contributes to their markedly higher rates of antisocial behavior (Moffitt, Caspi, Rutter, & Silva, 2001). Other research, too, has shown that although the developmental trajectories are broadly similar in males and females, a life course-persistent pattern is much more common in males (Fontaine, Carbonneau, Vitaro, Barker, & Tremblay, 2009). Nevertheless, there are some indications of sex differences in other research. For example, the severe empathy deficit associated with psychopathy in males is less evident in females (Dadds & Rhodes, 2009).

Similarly, country or ethnic group differences may limit the generalizability of findings (Rutter & Tienda, 2005). For example, Deater-Deckard, Dodge, Bates, and Pettit (1996) showed that the association between child aggression and physical discipline applies only to European-American children and not African-American children, while other studies have shown broader applicability in this association (Deater-Deckard et al., 2011). Understanding the generality and specificity of these relations is challenging because of the difficulties in disentangling cultural differences from relative poverty rates, differences in political power and exposure to discrimination, and other explanations for parent and family influences on disruptive behavior. For example, certain ethnic minority groups living in poverty have elevated rates of crime and violence while other groups do not (Morenoff, 2005; Pople & Smith, 2010). Also, there is evidence of cultural differences in how family dynamics influence risk among ethnic groups of similar economic status. For example, Gorman-Smith, Tolan, and Henry (1999) found that among inner-city U.S. Latino male adolescents, elevated emphasis on family closeness and responsibility was associated with risk for delinquency, while for African-American youth the opposite was the case. Parke and Buriel (1998) also describe the importance of viewing families as embedded within a variety of social systems and cultural traditions, including extended family ties, neighborhood norms and conditions, work experiences, and variations in access to and utility of educational, medical, social, and political systems. These multiple levels and wide array of potential influences on development of disruptive behavior disorders, as carefully described by Sameroff (1994), feed into a cumulative transactional process that also affects and is affected by environmental conditions to then affect subsequent development. As children advance along their developmental course, a coinciding developmental course of family priorities and tasks emerges as well. Thus, an adequate understanding of family influences must incorporate both child development and parent and family systems development. Further, all of these interrelated influences occur within secular trends and larger cultural and societal mores and social conditions. For example, the growing number of children growing up with only one biological parent may

alter how influential parenting is on child development as well as affect how the parent–child dyad influences individual tendencies of the child (Tolan, 2002).

What these complexities imply is that we must assume that, in most instances, the link between parenting and child behavior will reflect both a parent effect and a child effect, operating as part of an ongoing *transactional* process (Sameroff & Chandler, 1975). While described often and recognized by most, there is still limited incorporation of such principles into research design and interpretation of effects. Modeling such theorized multilevel multivariate growth relations can challenge current design and analytic capabilities (and many research budgets). Yet, there is value in pursuing work that is informed by this framework even if by necessity only focused on a piece of the overall processes of influence thought to be at work. Research should track and test a diversity of interdependent family influences and the emergence of problems over time (Forgatch & Patterson, 2010; Maccoby, 2000; Maccoby & Martin, 1983).

Diverse Family Influence Processes

Family influences may affect disruptive behavior and subsequent interventions through different psychological processes. Rothbaum and Weisz (1994), in a meta-analysis, reported that the relations of parenting approaches to behavior were additive; that is, they had stronger correlations when combined rather than individually. Grusec and Davidov (2010) argued that several parenting approaches can be differentiated and associated with different child outcomes, including responsiveness or sensitivity to the child's needs and communication; how protective the parent is of the child; level of controlling behavior; guided learning; and group participation or quality of the relationship (see also Maccoby, 2007). Parke, Burks, Carson, Neville, and Boyum (1994) theoretically distinguished three levels of parental influence: (1) parent as interactive partner with the child; (2) parent as direct instructor and manager of child behavior; and (3) parent as provider of developmental opportunities or shaper of context. This model augments another useful distinction by Darling and Steinberg (1993) between parenting style or emotional qualities of the parent–child relationship (Baumrind, 1991) and parenting practices or the methods and habits of parenting in the teaching, shaping, and managing of child development (Darling & Steinberg, 1993).

These and other formulations have wrestled with the distinction between basic and derivative parent influence processes (Tolan, Gorman-Smith, Huesmann, & Zelli, 1997), how processes overlap (Dunn, 2010), the importance of bidirectionality (Turiel, 2010), and whether supposed domain-specificity implies a modularity of effects (Gelman, 2010). However, with respect to disruptive behavior problems, these domains of family influence by no means exhaust the possible modes of influence or clarify the source of these influences (Rutter, 1989). For example, effects may be transmitted genetically, through perinatal environmental harm such as exposure to maternal alcohol or other substances (e.g., D'Onofrio et al., 2007; Lester,

LaGasse, & Seifer, 1998), or high levels of maternal stress (Davis & Sandman, 2010). They may stem from overt parental psychopathology (Eaves, Prom, & Silberg, 2010; Rutter, 1989) or from abuse or neglect (Jaffee et al., 2004; Kendler et al., 2000). Applying designs that can help differentiate forms of genetic and environmental influence is important to achieve clarification and greater certainty about the relations among including which are basic and which are derivative (Silberg, Maes, & Eaves, 2012). Similarly, while there is some scientific understanding that can be gained from studies that are limited to statistical adjustment for potentially confounded parenting processes of influence, these cannot determine causality or clear differentiation of relative primacy and derivative effects. Silberg, Maes, and Eaves (2010a, 2010b) point out that incorporating genetic influences in the research design is necessary to differentiate these possible modes of mediation and the need for designs that do not confound environmental effects with direct and indirect genetic influences (Silberg et al. 2012). This view can be extended to the challenge of differentiating multiple forms of parenting influence (Marceau & Neiderhiser, this volume).

Applying a Gene-Environment Interplay Perspective

There are many compelling reasons that family influences on disruptive behavior disorders have to be viewed through the lens of gene-environment interplay. The topic of gene-environment interplay framework and pertinent studies is considered in more detail in Chap. 2, but it is worthwhile to note critical features here. To begin, environments, through epigenetic effects, influence gene expression (Meaney, 2010); this transmission is crucially important because genes can be influential only if they are expressed. Environments may also become biologically embedded through other routes, as illustrated by the effects of maltreatment on immune mechanisms (Danese, Pariante, Caspi, Taylor, & Poulton, 2007). In addition, it has been shown that abuse and neglect have neuroendocrine effects (Gunnar & Donzella, 2002). It has still to be determined whether these could account for behavioral consequences.

Gene-environment interplay also involves gene-environment correlations (rGE; Kendler & Baker, 2007), implying that family features that index the rearing environment might also involve a degree of genetic mediation (Plomin & Bergeman, 1991). It is not, of course, that genes have effects on the environment. Rather, indirectly, via effects on proteins, the genes affect behavior, and the need is to study the processes involved in the effects of child behaviors on the environment; the extent to which such behaviors are genetically influenced is a secondary consideration.

Gene-environment interactions (G×E) are even more important (Dodge, 2009; Rutter, Moffitt, & Caspi, 2006). For example, Caspi et al. (2002) showed that a variant of the MAOA gene moderated the effect of child abuse on antisocial behavior. In the absence of the relevant genetic variant, even definite child abuse had a negligible risk effect for antisocial behavior. One implication is that some genetic effects

operate through influences on environmental susceptibility. There has been a tendency to consider the finding in terms of a genetic influence on vulnerability to adverse environments. However, evolutionary considerations suggest that it is more likely that the influence is on responsiveness to both good and bad environments (Belsky, 2005; Boyce & Ellis, 2005).

Parents can influence child risk through genetic and environmental transmission and as shared traits or tendencies or as products of between family members (Blaze, Iacono, & McGue, 2008; Dodge & Sherrill, 2007). Within these basic differentiations of influences, there are multiple processes that have been implicated as pertinent in family influences on disruptive behavior. For example, genetic liability because a parent manifests a substantial antisocial behavior is different from the genetic liability from parenting tendencies and/or child reactivity to such parenting (Rice et al., 2009). This influence also differs from liability deriving from genetic behavioral tendencies toward maladaptive reactions to environmental conditions or sensitivity to risky environments, including parenting practices in one's family (Rutter, 2010). Distinct from this risk (and protective) influence traceable to genetic similarity, socialization features of parenting practices and family relationship qualities are acting on child development in many forms, with the transactional development between tendency and experience accumulating into enhanced or dampened functional capabilities (Sameroff, 1994). Clearly, advances will be greatest when studies can better understand the relative contributions of these different components and the interrelations among them. One example is a multivariate twin design study examining the effect of parents and siblings' negativity toward the child (Pike, McGuire, Hetherington, Reiss, & Plomin, 1996). The study partialled genetic and environmental contributors. The findings showed that although genetics mediated a portion of the effect on the children's antisocial behavior, environmental effects as mediators were stronger. Use of this design with our more current understandings of key parent and family processes would be fruitful. Mills-Koonce et al. (2007) offer an example of how parent–child genetic interplay might inform child risk for antisocial behavior. They genotyped parent and child dopamine receptor D2 (DRD2) polymorphisms and sorted the sample into groups by the presence or absence of the risk polymorphism in mother or child. They then identified any relation between child behavior problems and parental sensitivity, which is thought to be related to DRD2. They found an allele thought to be related to lower parental sensitivity in children also was more common in their children. However, they also found that this pattern related to child evocation of less responsive and positive behavior in addition to explaining parental lower sensitivity. Notably, they did not find a relation between this pattern and harsh or negative parenting per se, but specifically to less sensitive responding by parents.

These many considerations create a picture of genetic liability and capabilities intertwined with environmental conditions. Some environmental conditions are truly exogenous, but others are created through the infant's interaction with the environment. These influences are affected further by ongoing, and not unrelated, parenting practices such as developmental and individual adjustment to child capabilities and needs, monitoring and predictable and consistent discipline methods,

within-family relationships such as emotional warmth or felt support and cohesion, and surrounding micro and macro systems such as economic and social resources, interpersonal networks, and life stress (Patrick, Snyder, Schrepferman, & Snyder, 2005). To adequately formulate how family and parenting in particular is related to disruptive disorders, research must incorporate this complex set of potential influences, which cannot be presumed to be simply reducible but are likely distinct, interdependent, and acting over time toward some stability of personality and behavior (Moffitt, 2005). This overall transactional process is also not simply so varied and individualistic as to negate the value in identifying key components and relative saliency of different forms of influence. Tremblay et al. (2004) have argued that the early years are most important because it is then that parents need to help children learn *not* to use physical aggression as a problem-solving strategy. However, important changes in different aspects of disruptive behavior occur later in childhood and adolescence, and it is implausible that family influences do not operate then as well. Similarly, Belsky, Steinberg, and Draper (1991) suggest that the first 5–7 years is when a child learns the expected predictability of resources in the environment, the trustworthiness of others, and an understanding of how enduring close relationships are formed. While later experiences, especially traumatic experiences, can shift these mental schemas, these early experiences persist in affecting risk for most children.

These considerations point to the value of tracking how interdependently and over time a cascading set of influences on disruptive behavior disorders develops. This information can then be formulated into theoretical models of differential risk and testable causal hypotheses (Dodge & Pettit, 2003; Patterson, Reid, & Dishion, 1992). This perspective implies that theories and related empirical tests will fall short if they are not formulated within an understanding that family influences are transactional, multilevel, and cumulative.

Organizing Parenting Influences

Within this broad and complex transactional developmental framework, numerous processes of influence can be identified, although much more work is needed to fully understand them. Five parenting practices emerge as most empirically supported and potentially useful as components in a multidimensional understanding of the influence of family processes on disruptive behavior disorders. The five are: (1) attachment relationships, (2) discipline methods, (3) monitoring of child safety and well-being, (4) warmth/hostility in the parent–child relationship, and (5) maintaining cohesion in the face of stress.

Attachment relationships. It is usual for children to develop multiple attachment relationships, although it is also usual for there to be an attachment hierarchy (Cassidy & Shaver, 2008). From a biological perspective, it is clearly adaptive for this to be the case in order to ensure that social development can continue normally even if the main caregiver dies. But this does not mean that benefit increases with a roster of changing caregivers or even a large number of caregivers. It does mean that

there is likely a primary attachment figure for most children but not a singular figure and meaningful attachment relationships are confined to no more than three or four attachment figures who are consistently present.

Understanding of the relation of attachment to disruptive behavior disorders involves five main issues. First, there is the question of long-term stability of assessments. Grossman, Grossman, and Waters (2005) brought together the findings of the studies extending from infancy into adult life and showed that attachment security in infancy constituted a very weak predictor of adult functioning, accounting for only some 5 % of the variance. By contrast, when combined with other social measures at somewhat later ages, social relationships constituted a powerful predictor of adult functioning, accounting for nearly half the total variance (Rutter, 2006). Second, there is the question of the differences in findings on stability of attachment relationships for low-risk samples and high-risk or clinical samples (DeKlyen & Greenberg, 2008). Stability has been found to be higher in the high-risk samples. However, this has also led to the finding that the main psychopathological risk derives from the combination of attachment insecurity, family adversity, and ineffective parenting. This risk relation for disruptive behavior, however, seems to be greater in boys than girls. Third, occurrence of disorganized attachment shows a stronger association with child psychopathology, as well as a stronger association with maltreatment and with institutional care (van Ijendoorn, Schuengel, & Bakermans-Kranenburg, 1999). Nevertheless, disorganized attachment occurs in some 15 % of children from low-risk samples, so that although it is involved with a probabilistic increased risk for psychopathology it is not strongly deterministic. Fourth, although attachment insecurity and disorganized attachment are associated with a moderately increased risk for psychopathology, this risk is diagnostically nonspecific (DeKlyen & Greenberg, 2008). It does not seem to be more associated with disruptive behavior than other maladaptive outcomes. Fifth, few of the studies of the association of attachment to disruptive behavior have been prospective and longitudinal so causal inference is necessarily uncertain. It may be the relation is transactional. For example, Kochanska, Barry, Aksan, and Boldt (2008) and Kochanska, Barry, Stellern, and O'Bleness (2009) produced empirical findings that were consistent with a bidirectional process in which the delineation of parental behaviors might be important in studying the pathways for early social relationship to disruptive behavior disorders (see Burke, Loeber, & Birmaher, 2002; Guttman-Steinmentz & Crowell, 2005 for a discussion of the interplay between attachment features, social context, and family stress).

Discipline methods. Given that a major feature of disruptive behavior problems is disobeying adult directives, a key interest among researchers is how discipline practices meant to shape behavior and curb aggression contribute to disruptive behavior (Barkin, Scheindlin, Ip, Richardson, & Finch, 2007). A central tenet has been that consistency in rules and expectations about behavior is important, as is a proportional response to misbehavior and compliance, such that more serious transgressions are treated differently from less serious transgressions. In addition, the methods of discipline are thought to be important, including use of physical punishment, psychological coercion, and/or positive and supportive comments to reinforce desired

behavior (vs. negative reinforcement or ignoring undesired behavior) (Dishion & McMahon, 1998). The coercive interaction model of Patterson et al. (1992) is the most influential. That model relates inconsistent rules and parental responses to child resistance to a pattern of subsequently fewer attempts at control by parents, which, paradoxically, promotes the misbehavior through negative reinforcement (Snyder, Cramer, Frank, & Patterson, 2005). Often this exchange is marked by abrupt and intrusive parenting that evokes child resistance and an emotionally charged exchange of parental imposition rather than corrective guidance, which has been labeled a "coercive exchange" (Patterson, 1997). Over time, the model has incorporated parents' hostile attribution about motivations of the child, and the child's proclivities toward noncompliance or aggression as a spur for greater parental control, which in turn can strain parental capabilities. For example, O'Connor, Deater-Deckard, Fulker, Rutter, and Plomin (1998) compared 38 adopted children with a genetic risk for antisocial behavior with 50 children with no risk. Parenting was consistently more likely to be negative when children were at genetic risk, but the stimulus for negative parenting behavior was the child's negative behavior.

This model has evolved to emphasize a transaction with multiple potential contributors and the need to consider child as well as parental attributes in attempts to alter the dysfunctional exchange. Also, as noted by Patterson (1997), parenting inconsistency can be expressed as variation in type of response (e.g. disinterested and then angrily disapproving) as well as level of response (mildly disapproving to very angrily disapproving). The inconsistency also can work through withdrawal of initial control efforts. Each inconsistency contributes to a likely increase or persistence of the undesired child behavior. For example, if parental substance abuse leads the parent to strongly react to a child's noncompliance while under the influence but leads to a tempered response when sober, the inconsistent response pattern, as well as any coercive cycle patterns, can reinforce the child misbehavior. In fact, Patterson and colleagues explicitly note that harshness can be conceptualized as having impact because it is expressed intermittently and so is inconsistency in response to misbehavior (Patterson et al., 1992).

The use of physical punishment has also been of great interest for its potential role in disruptive behavior. The relation has not been clearly determined in part because of variations in what is being measured. There has been an unfortunate tendency in the literature to treat corporal punishment and physical maltreatment as milder and more severe varieties of the same phenomenon. The study by Jaffee et al. (2004) showed this is mistaken. Maltreatment involved very little genetic liability and had a strongly adverse effect on the child. Moreover, any genetic liability was environmentally mediated. By contrast, corporal punishment had a substantial genetic component that seemed to indicate that it mainly arose as a response to the child's disruptive behavior rather than serving as a cause for it. In addition, the same study showed that a frequent recourse to corporal punishment was associated with an increased possibility of escalation to maltreatment. Thus, rather than being two parts of a continuum they are different in basis and how they arise in the transactions of development. They are associated, and given the particular association of increased escalation with frequent corporal punishment to maltreatment, it is clear that parental use of frequent corporal punishment is not advised. Even if giving the

impression of short-term effectiveness or actual suppression of child disruptive behavior, it is likely to have ill effects in the long term. Extreme physical abuse has been shown to relate to increased child aggression, although not simply in a linear and unidirectional fashion (Dodge, Bates, & Pettit, 1990; Lansford et al., 2005). In addition to these empirical findings that suggest the complex relation of corporal punishment and maltreatment and disruptive behavior, it seems to ignore the human rights concern in allowing serious physical punishment of children when that is illegal if done to adults or children other than one's own.

Within normal ranges of physical punishment, the correlation to disruptive behavior is still significant, but most of the relation can be explained by parents' response to child behavior rather than parental influence (Jaffee et al., 2004). The vast literature on physical punishment suggests generally that it exacerbates antisocial behavior when it is inconsistent and harsh, particularly if there is a time delay in the punishment (Nelson, Hart, Yang, Olsen, & Jin, 2006). The majority of studies in Gershoff's (2002) meta-analysis also found that physical punishment is correlated with less internalization of intended moral lessons, self-control, and empathic tendencies, especially when there is heightened emotion and limited communication about the reason for punishment (Gershoff, 2008).

Several studies have examined whether the adverse effect of physical discipline generalizes across cultural groups. In Western culture, parents' use of physical discipline connotes displeasure and disappointment with the child, which could lead the child to comply immediately but adopt a defensive and combative response that grows into antisocial behavioral patterns. Yet if the interpretation is different in other cultures, the impact might differ. In a U.S. sample, Deater-Deckard et al. (1996) showed that the effect of physical discipline on increasing aggression applied more strongly to European-American children than to African-American children, which the authors attributed to different cultural norms. In a further examination of this same sample, Pinderhughes, Dodge, Bates, Pettit, and Zelli (2000) found that African-American parents were more likely to use physical punishment. African-American parents were also more likely to make hostile attributions about the child's misbehavior and to fear that the child's misbehavior would lead to long-term problems. Thus, the use of physical punishment by African-American parents was warranted from their perspective and designed to prevent problem outcomes, and it was less strongly correlated with child antisocial behavior.

Lansford et al. (2005) tested the hypothesis that the relation between punishment and child antisocial behavior might vary across cultural groups in a study of parents and children in Italy, China, India, Kenya, Philippines, and Thailand. They found significantly different correlations across cultures. In those cultures in which physical punishment had higher base rates, its adverse effect was lower than in cultures in which punishment occurred more rarely. Nevertheless, although the effects of disciplinary practices vary according to the ways in which they were viewed in the particular culture, it cannot be assumed that practices that simply because a practice is acceptable in a culture, they are without risks. For example, female circumcision may be normative in some cultures. So far as we know, the effects on disruptive behavior have not been studied systematically but they clearly lead to harm through physical mutilation.

Others have linked more use of coercive parenting to economic stress and to lower socioeconomic status (Ceballo & McLoyd, 2002; Conger et al., 1992; Tolan, Gorman-Smith, & Henry, 2002), including tests that link increased economic stress to changes in parental coercion and subsequent child antisocial behavior (Conger et al., 2003; Schonberg & Shaw, 2007). Together these findings suggest that the harmful effects from coercive transactions are consistent across cultural and economic level groups, but that the saliency for disruptive behavior can vary by ethnic group and socioeconomic status.

Monitoring. The complement to discipline consistency and harshness is monitoring. Parental monitoring has been among the more consistent empirical correlates of disruptive behavior and in parenting programs is a frequent target for change (Dishion & McMahon, 1998). Originally conceived as parental attention to and knowledge about a child's behavior, social relations, and motivation in middle childhood and adolescence, the concept has been expanded to include safety, direct interaction, and attention to peer relationships (Dishion & McMahon, 1998). In the past 10 years, questions have been raised about the content validity of most measures of monitoring. Stattin and Kerr (2000) provided some of the most careful criticism of the concept as measured, noting considerable emphasis in measures on information provision by the youth to parents and/or reference to personal closeness between adolescent and parents. They also noted that once disclosure and youths' perceptions that they communicate well with their parents were controlled for, the "pure monitoring" items were no longer significantly related to youth delinquency. Other studies have shown similar patterns, but point to the need to augment monitoring with other parent–child relationship characteristics, such as positive or reinforcement parenting, better communication, and emotional warmth or receptivity during communication (Tolan, 2002). In addition, there are hints that the role of monitoring as narrowly defined is more important in childhood than either in infancy or adolescence. For example, Lahey, Van Hulle, D'Onofrio, Rodgers, and Waldman (2008) tested the Stattin and Kerr (2000) contention that most of what is considered monitoring is of adolescents' willingness to share with parents details about their lives. They found that while adolescent disclosure did explain parental knowledge about child activities and experiences in relation to delinquency risk, there was also an independent effect of parental limit setting or control through monitoring. This perspective is consistent with Fletcher, Steinberg, and Williams-Wheeler's research (2004) that found monitoring was dependent on knowledge and information sharing but also was related to felt warmth and control efforts by parents. This analysis showed that parental actions to monitor a child's whereabouts and to obtain knowledge of the child's activities consistently predicted less child antisocial behavior.

The concept of monitoring as a distinct parental effort changes significantly across the child's life course, yet many of the items used to assess monitoring do not reflect this changing meaning. For example, checking on a child's whereabouts outside the home is not meaningful for assessing monitoring of infants and young children. Yet by early adolescence it is central to the concept. For this reason, some have suggested

that monitoring should be reconceptualized to be a developmentally specific parenting role during the late elementary and middle school years. Another view is that measurement should be developmentally informed so that care to ensure safety and constant awareness in early infancy can be understood as developmentally appropriate monitoring, keeping the child within sound and site while playing is appropriate for preschoolers, and other efforts appropriate to early and later adolescence are used. The conceptual thread is an active understanding of a child's activities, views, and experiences when not with the parent. This then could be related to rather than confounded with communication quality (Stattin & Kerr, 2000).

Warmth. Parental warmth was included in Baumrind's (1971) seminal formulation of parenting's impact on child development. Parental warmth also pervades in studies of attachment, discipline methods, and caregiving; it is conceived as an "emotional tone" affecting these processes (Darling & Steinberg, 1993). As Darling and Steinberg (1993) noted, parental warmth overlaps with parenting practices but is usefully differentiated as a positive receptivity toward a child's needs and tendencies and a positive disposition toward the child (Deater-Deckard, 2000). Warmth has also been viewed as the absence or low rates of discipline methods that rely on threat, disparagement, rejection, or forms of emotionally abusive interpersonal orientations (Dodge, Pettit, & Bates, 1994). Thus, one can find warmth applied as a direct, overt parenting practice; an approach to parenting practices; or a subsuming characterization of more desirable parenting, with linkage to disruptive behavior documented for each conceptual base (Domitrovich & Bierman, 2001). Finally, warmth has been shown to be a "base" of security within the family relationship when youth face developmental challenges such as peer acceptance and social competency (Patterson, Cohn, & Kao, 1989; Steelman, Assel, Swank, Smith, & Landry, 2002). This pattern of findings may suggest that discipline methods and warmth might not only differentially affect risk but also vary in how genetic and environmental components contribute to risk.

More recently researchers have attempted to differentiate warmth within a multivariate model of parenting influence. Deater-Deckard, Ivy, and Petrill (2006) tested the role of warmth in moderating the relationship between physical punishment and child externalizing problems. Although use of physical discipline and child problems were moderately correlated, maternal warmth moderated the relation, such that the greater the warmth, the weaker the relationship between physical punishment and child problem behaviors. Warmth and discipline methods were also quite modestly related, suggesting that discipline practices and emotional warmth between parent and child are relatively independent. Both are therefore valuable in assessing the impact of parenting on disruptive behavior (Barkin et al., 2007).

Similarly, Stormshak, Bierman, McMahon, and Lengua (2000), in seeking to link coercive discipline practices to disruptive behavior in general, found a more specific link in low parental warmth. This study suggests that parent–child warmth may set the stage for when coercive parenting is most harmful. Feinberg, Button, Neiderhiser, Reiss, and Hetherington (2007) demonstrated genetic contributions to parental warmth (defined as closeness and rapport with the child) and negativity (defined as use of punitive and coercive parenting) depended on the child's behavior.

Feinberg et al. (2007) found that the effect of parental negativity on antisocial behavior strengthened as antisocial behavior increased, but the extent to which that negativity was due to genetic similarity was relatively lower at higher levels of antisocial behavior. Warmth, on the other hand, did not significantly moderate the genetic and shared environmental contribution to antisocial behavior. It did moderate the correlation for a non-shared environmental contribution.

Similarly, Tolan et al. (2002) compared discipline practices, monitoring, and parental warmth/harshness as mediators of parental partner violence on youth behavior. They found that each was significantly related in a multivariate model to youth violence. In addition, warmth and monitoring mediated the parental violence relation to youth violence, whereas disciplinary practices did not. This pattern of findings suggests potential differences in how varying parental practices transact with other family characteristics. In one informative study, Richmond and Stocker (2006) added to these interaction perspectives by documenting the unfolding transaction over time between parental warmth/hostility and child aggression. They found that those children who exhibited more aggression initially were more likely to evoke parental hostility, and that over time those with more hostile parents showed greater growth in disruptive disorders. Maternal hostility levels also differed by families and were related to overall child externalizing behaviors. The similarity in findings of these two studies points to the possible role of warmth as a distinct and important contributor to parenting influences on risk, albeit with more understanding needed about how these processes develop and interact over time to affect risk trajectories.

Family systems characteristics: Cohesion. A family systems focus moves from the dyadic parent–child level to the triadic and larger family set of relationships. It views the family as one, if not the, essential unit of interest (Cox & Paley, 1997; Tolan, 2002). For example, links between parental conflict and disruptive behavior are also well documented and were summarized succinctly in a recent systematic review by Rhoades (2008). In a meta-analysis of parental conflict and child problem behavior (internalizing and externalizing), she noted that it was exposure to the between parent conflict that was related to externalizing behavior, whereas rumination about parental conflict was only related to internalizing behavior. Rhoades (2008) argues that parental problems affect children through decreasing security and increasing affective and cognitive stress as well as a lessening of soothing parental responses or those that promote self-control. Notably she suggests focusing interventions on lessening exposure to overt conflict but also on child cognitive, affective, and physiological reactions that could lessen the harmful impact of conflict.

Among the many key constructs of family systems, lack of cohesion in the family has emerged as one with more empirical support as associated with risk for disruptive behavior disorder, including evidence that it is changes in cohesion that mediates the effects of some family intervention programs on disruptive behavior (Henggeler, Melton, & Smith, 1992; Tolan, Gorman-Smith, & Henry, 2004). Cohesion can be defined as an ability to maintain an emotional connection among family members in the face of stress and conflict (Sturge-Apple, Davies, &

Cummings, 2010). In addition, cohesion is thought to involve more positive and cordial family relationships, which promote well-being and constructive problem-solving during moments of conflict. Family cohesion measured at preschool predicted increased prosocial interactions with peers during middle childhood (Leary & Katz, 2004). Lack of cohesion, on the other hand, has been linked to behavior problems in middle childhood and preadolescence (Kerig, 1995; Lindahl, 1998). Studies have also identified cohesion as a mediator of family stress on risk (El-Sheikh & Buckhalt, 2003; Lindahl, Malik, Kaczynski, & Simons, 2004; Vandewater & Lansford, 2005). For example, Sturge-Apple et al. (2010) found that children in the least cohesive families had the highest average number of problems and increasing problems over time.

Cohesion may be particularly relevant to disruptive behavior disorders (Fosco & Grych, 2008). The insecurity and lack of positive family engagement that constitutes low cohesion may have a particularly precipitant role in how aggressive tendencies develop toward disruptive behavior disorders. Richmond and Stocker (2006) reported that low cohesion explained adolescent externalizing behavior even when parent–child hostility was taken into account, and it added to the explanatory power of each child's behavior within a family and between family differences. Multilevel modeling indicated an independent, significant relationship of low cohesion and externalizing problems in addition to parent–child hostility, consistent with the view that parenting effects occur within overall family relationship qualities (Jenkins, Rasbash, & O'Connor, 2003; Tolan et al., 2003).

Family cohesion also was found to moderate the relation between testosterone and disruptive behavior in adolescents. Under conditions of low family cohesion, free testosterone was positively associated with disruptive behaviors among boys, whereas in families with high cohesion no association was observed. In contrast, free testosterone was negatively associated with disruptive behaviors among girls in low-cohesion families (Fang et al., 2009). This study also illustrates the interplay of a possible genetic predisposition and family system characteristics in affecting risk for disruptive behavior disorders.

Advancing Knowledge About Family Influence Processes

This summary of the field's understanding of the relations between parenting and family characteristics and disruptive behavior disorders reveals many critical considerations moving forward. Perhaps most fundamental is the need for research with design qualities that can permit discrimination of the various forms of genetic and environmental family influences and clarification of which processes have a basic role from those that function more as augmenting of primary influences and from those that are derivative or provide no additional explanation once other correlated processes are considered (Marceau & Neiderhiser, this volume; Rutter, 2012; Silberg et al., 2012). At the same time, theoretical clarifications and elaborations that locate causal understanding with a developmental framework that can consider

variations in timing of effect, immediacy of evidence of effects and relative permanence of effects and that relate different levels of ecological influences and can incorporate a transactional process will be very important in advancing what is best to study in descriptive and causal studies.

One important area of limited study to date is the simultaneous effect of multiple family influence processes. A meta-analysis points to similar effects for multiple processes whether in discriminating between disorder features (Rothbaum & Weisz, 1994; Wakschlag et al., 2010) or interventions (Eyberg, Nelson, & Boggs, 2008; Wyatt, Valle, Filene, & Boyle, 2008). For example, Wyatt et al. (2008) found that teaching parents to use time outs and the importance of parenting consistency resulted in consistently larger effects than interventions teaching parents problem-solving skills or how to promote children's cognitive, academic, or social skills. However, they also note that most programs involve multiple target processes, often without specifying which aspects are meant to affect which skills or how an effect on one process might relate to an effect on another. Thus, disentangling the importance of various parenting and family processes in multivariate studies is needed. The task of partialling the unique importance of each parenting strategy could include various research approaches, including mediational analyses to model differential influence (Baron & Kenny, 1986; MacKinnon, Fairchild, & Fritz, 2007). In such an approach, mediation is used not only to test for expected intermediaries between intervention exposure and change in target behavior, but also to test processes not thought to the intermediaries, to show that they do not mediate outcomes (MacKinnon et al., 2007).

Sorting contributors to intervention effects on parenting practice and family relationship influences will also be facilitated by advances that permit more sensitive and more complex mediational analyses. This research should include cross-level mediation, moderated mediation, and multiple mediators, with recognition that partial mediation is more likely than full mediation (see Fairchild & MacKinnon, 2009; MacKinnon et al., 2007; Rutter & Sonuga-Barke, 2010). However, Kazdin (2007) has pointed out that more than a single statistical model is needed to test for mediation. The starting point is the same, namely, the identification of a theoretically sound and empirically supported mediator and ruling out alternative processes, but five more steps are required. As Kazdin notes, consistency across replication; experimental tests that manipulate the mediator to determine the effects on child outcome; the establishment of a time line between the mediating and mediated effects; determination of a gradient of dose effects; and establishment of the plausibility of mediation in terms of a broader evidence base (including biological studies in humans and the use of animal models). Formulating a model and a proper sampling for parental and family processes is, in other words, rather daunting. As far as we know, there are no published examples using all six steps, but the recommendation is sound and there are examples in which some of the steps have been used to test mediation. While ultimately it is experimental manipulation of the theorized mechanism that is needed, such statistical methods can provide important direction about important parenting and family processes. This approach can help promote refinement of interventions and can also suggest valuable emphases for subsequent

research to help sort various forms of genetic and environmental influence and to suggest the components of transactional models of development of disruptive behavior.

Researchers can also use a range of natural experiments to test the causal pathways of influence (see Rutter, 2007, 2012). Studies could focus on the possibility of genetic mediation of parenting practices or effects using twin, adoptee, and other strategies that create a quasi-control and experimental group. An example is the use of assisted reproductive technologies (ART) (see Rice et al., 2009; Thapar et al., 2009). Some varieties of ART involve genetic liabilities shared between mother and child (as with donated sperm) and others do not (as with donated eggs). This strategy showed, for example, that it was unlikely that maternal smoking during pregnancy contributed to an increased risk of antisocial behavior or ADHD among children. Sibling comparisons (between offspring exposed to maternal smoking in pregnancy and those not) led to the same conclusion (D'Onofrio et al., 2008; Obel et al., 2011).

The Next Generation of Research on Parenting

Even though a literature review reveals a great deal about the processes, impact, and antecedents of parenting behavior, much is still to be learned. Furthermore, new developments in our understanding and measurement of genetics are leading to evolving frameworks for understanding influence. Additionally, the rapid shift and extent of impact of information technology on children's daily lives and children's exposure to new cultures may be fundamentally shifting how parenting and related family characteristics influence child development, including risk for disruptive behavior disorder. The final section of this chapter identifies six issues facing the next generation of research on parenting. This list is not meant to exhaust the six most critical issues, but identify issues that are, in addition to advances in technology and methods of science and results from specific studies, important considerations for research aiming to improve understanding about the relation of parenting and associated family characteristics to disruptive behaviors.

Direction Bias in Sampling and Designs

One of the important challenges is the problem of directional bias in parenting research studies. As first noted by Bell in 1968, the alternative hypothesis to the claim that parenting contributes to child behavior problems is that child behavior elicits particular parenting behaviors. Although longitudinal studies restrict correlations to temporally precedent ones, most theories of parent–child relationships suggest reciprocal relations over time, which acknowledge selection biases as at least partial explanations. Furthermore, advances in heritability

studies suggest that genetic factors that might underlie many child behavior endophenotypes, such as impulsivity, might also underlie parenting behaviors, such as inconsistent harsh discipline. In the 45 years since Bell's re-interpretation, this challenge has not been conclusively surmounted. As advances in specific knowledge about gene processes and heritability of more specific parenting and child behaviors advance, and more refined statistical tools suggest more promising foci of research, particularly sampling that is organized to permit better differentiation of genetic and environmental influences, the critical features of the parent–child transactional relationship should become better understood. Thus, designs that can control for or minimize confounding of different forms of parenting and do not bias directionality of influence are critical for advancing knowledge (Silberg et al., 2012).

Differences Across the Life Course

Just as child behaviors change across the life course, so, too, do the tasks of parenting change. During infancy, the major tasks are to provide for the infant's survival through food and warmth and to provide a secure attachment for the infant's comfort. During the toddler years, the task of parenting shifts to providing consistent responses to misbehavior so that the child learns which behaviors are acceptable in a social world and which are to be avoided. During early adolescence, when the child naturally explores peer groups and seeks new experiences which may include risks such as substance use, a parent's task moves to monitoring the child's whereabouts, supervising activities, and limiting access to harmful environments (such as exposure to alcohol and substances).

For scholars of developmental psychopathology, an important question to pursue focus in this line of knowledge development is the differing impact of parenting behaviors on a child's development at different ages (and the child's behavior impact on parenting behaviors), particularly how transactional impact may vary as a function of age and related needed parenting. Surprisingly little is known of these contours, however. Too many empirical findings are presumed applicable across ages, which future research should rectify. For example, the meaning of corporal punishment likely changes as the child gets older and begins to understand whether a parent's behavior is deviant by cultural standards, yet we do not know whether this parenting style has different effects at different stages of development nor how that might depend on child understanding of the style as deviant or atypical. In the next generation of research we should work to better understand how the multiple effects of a given parenting behavior pattern vary across development. In doing so, it seems important to consider that effects, bidirectional or unidirectional, can be immediate or delayed and temporary or long lasting. It is possible, for example, that corporal punishment in early years can evince immediate and temporary compliance by the child but leave residual ill effects on identity and sense of competence over the long term.

Fathers and New Family Configurations

Although Parke (1996) lamented years ago that not enough is known about fathers' effects on child development nor is this given adequate attention in research, this gap in knowledge continues today. The particularity and the additive role of fathers takes on new meaning given the growing proportion of child births to single mothers, the increased divorce rates, and the lesser but emerging rates of single fathers. Some studies have begun measuring fathering influence cognizant of the similarity of fathering to mothering but also that there are meaningful distinctions (see DeGarmo, 2010 for one such example). Fathers remain involved in a child's life even when not living with the child. How these different living arrangements affect fathering and alter the impact of father behavior on child disruptive behavior disorders is not yet clear. With growing independence between mothers and fathers comes the potential for more independent parenting styles and family rules. Therefore, it will be important to learn more about how mothering and fathering interact in non-intact families. Consistency between parents would seem to be important in mitigating child disruptive behavior, although it is plausible that one parent's warmth could protect a child from the adverse impact of the other parent's harshness, and the growing ease of independence could mean greater hope for a child to become free from the ill effects of one problematic parent (DeGarmo, 2010).

These shifts in family configurations touch all demographic groups and across societies. About 40 % of births in the United States are to single mothers, with figures above 50 % for Western European and Scandinavian countries. Furthermore, couples increasingly delay marriage even after child-bearing and living together (Gibson-Davis, 2009). As single-parent families and other forms that blur the distinction between ascribed gender-based parenting roles reach levels of commonality, it is likely there will be shifts in not only what is culturally normative, but how family structure and risk are to be understood. At a more basic level, scholars are challenged to better organize measurement of fathering, father influence, and describe how, why, and under what circumstances single-parenthood, divorce, nonmarried parents, and other forms of family structure alters a child's risk for disruptive behavior.

Parenting in Context

Findings that parenting affects child disruptive behavior in different ways at different ages in different family configurations point to a broader need to understand parenting in context. While consideration of cultural, ethnic, and national norms has only recently been incorporated into developmental studies, there is evidence that contextual variables can play an important role in how parenting and child disruptive behavior relate. This contextual moderation might whether a given practice is culturally normative context (Lansford et al., 2005) or it might be the access to extended family and others to provide emotional and instrumental aid for the

parent–child relationship (McLoyd & Smith, 2002). Perhaps one of the most significant findings over the past decade is that while there seems to be some constancy in parenting impact, there is also considerable variation depending on context. Equally significant is how these findings reveal the subtlety and complexity of contextual influences. For example, there is much need for studies that examine how microsystem and mesosystem influences can facilitate parenting, particularly of children with risk or early evidence of disruptive behavior. How important is access to extended family or neighborhood resources? Similarly, there is need for more extensive and carefully formulated cross-cultural comparisons of the relative roles of key parenting processes identified in this chapter. We do not know yet *how* parenting is affected and its impact on and from child behavior depends on more micro and more macro contextual characteristics. The field needs to incorporate thoughtful and specific formulations of context into framing of research, just as there is need to incorporate genetic and nongenetic processes in such framing.

In addition to building on work conducted to date that describes potential roles of context and suggest variations in patterns, we suggest attention to three ways in which context can be important. First, context alters which parenting styles are possible or at least plausible. For example, even if past findings might suggest that infants are better off if a parent stays at home full time, this may not be feasible for many families in American society and elsewhere. Financial demands and increased valuing of work outside the home for each parent seem to make this less feasible. Similarly, if raising children in a violent and economically deprived community, it may be that parenting that promotes child exploration and opportunity to learn through experience is not viable; it may carry serious and lasting harm to the child (e.g. through eating lead on windowsills in substandard housing or through potential injury if playing near an area where gunfire occurs). Both of these examples suggest that parenting research will be well served by examining how parenting occurs in common context and varies in plausibility across contexts. It might be that under different cultural and economic constraints, the optimal parenting style changes.

Second, context alters the meaning of parenting behaviors. The impact of a parent's behaviors on a child cannot be reduced to a schedule of rewards and punishments that reinforce certain antisocial and prosocial behaviors. Culture and ethnic group meaning ascribed to family engagement, deference, and respect varies, and this variation may have influence on how parenting and associated family characteristics relate to risk. For example, greater family involvement was positively related to delinquency among Latino males growing up in inner-city communities, whereas it was negatively related for African-American males from similar communities (Gorman-Smith, Tolan, & Herry, 1999). Similarly, how common and appropriate a given parenting practice is seems to affect how it is related to disruptive behavior (Lansford et al., 2005). At the microsystem level, there can be variations in meaning attached to a given behavior. As parents of teenagers often experience, sometimes praising a child for a certain behavior in front of his or her peers *reduces* that child's desire to continue that very behavior. Each of these examples illustrates that context influence on meaning is an important consideration for future research. Among the key topics will be the relation of meaning variation to parenting practice use and

whether there is considerable or limited covariation in these by context. That is, if meaning variation is considered, is the explanatory value of practice accounted for (or vice versa)? Thus, studies of observed parenting behaviors and their effects on child outcomes are likely to yield inconsistent findings if the broader context is not described, measured, and taken into account as a moderating influence.

Third, new information technology is creating new contexts in which parent–child relations are being influenced (internet access, instant communication), as well as likely having impact on parent–child relations, including risk for disruptive behavior disorders. Past studies have shown that monitoring and supervision of adolescents are crucial factors in protecting them against antisocial behavior, and even critiques of this research point to communication between adolescent and parent as the alternative explanation. However, the methods available for monitoring and the immediacy of ability are evolving. Video and GPS monitors cannot be installed in vehicles to help parents track with certainty child driving practices. Cell phone records, internet postings, and other methods of more direct understanding of child behavior are now readily accessible and used with greater frequency. At the same time, such media provide opportunities for broader social engagement and exposure that may well shift how central parent–child relationships, particularly for older children. Further, access to on-line information and support may provide parents with aid, reminders, and social connection, even if physically isolated when stressed about parenting. While the potential impact of these and other aspects of the new electronic contexts is still being grasped, it is evident that consideration of these as contexts of and potential influences on parent–child relationships, including risk for disruptive behavior, warrants substantial attention.

While there are likely other aspects of context that are important for future research, these three seem to be valuable in a more elaborate and useful understanding of the role(s) of context in understanding family influences on child disruptive behavior risk. In general as well as for utility for those interested in this relation, a critical task of the next generation of research will be to provide systematic theoretical organization for study of contexts and thorough description of context considerations in which parenting-child behavior linkage is studied, so that critical features can be discovered. Accompanying digging into the multiple aspects of genetic influence and various relations between gene and environmental influences, research to better capture theorized pertinent aspects of context is essential.

Parenting Interventions

The final innovation in the next generation of research will emerge from interventions to change parent behaviors. Although some of clinical psychology's greatest successes have come from parenting interventions (Patterson et al., 1992; Tolan, 2002), the utility of experimental manipulations of parenting influence on child behavior to advance knowledge can be much greater. For example, design of

interventions that are more specifically tied to a gene-environment modeling of risk, that have procedures more directly and specifically formulated as expression of a causal theory, and measurement regimen that permits more thorough testing of the processes of effects and variations in effects by participant characteristics are all likely to expedite and deepen understanding for more effective interventions, but also about causes of disruptive behavior (Tolan & Gorman-Smith, 2002).

In addition, the intervention design and research field will likely change rapidly with the ability to utilize new methods and more interactive technology for communication between clinicians and parents, for improved data-gathering, and for incorporation of technologies into interventions. For example, parents will be able to more reliably and validly complete daily diaries of their behavior and the child's response through electronic entry on smart phones and similar devices, "push" technologies can prompt parents to implement specific parenting strategies, and synchronized reporting from cell phones can provide simultaneous data on the perspectives of parents and children. Internet resources including libraries of modeling of effective parenting, personal stress management, or support systems may augment or even fundamentally shift how preventive and treatment of disruptive behavior disorders through parent focus occurs. This can occur through resources for parents and for adolescents, but also in helping providers to provide more effective methods with greater fidelity.

Thus, we can expect novel parenting intervention technologies, engaging interventions with potential for prescriptive organization dependent on parent and child needs, substantially more data more easily accumulated, collated, and utilized, and new technology as part of parenting and parent training and intervention. Whether these innovations lead to greater intervention efficacy and serve to expedite scientific understanding of the role of family influences in disruptive behavior is to be seen. We expect so, but we offer a caveat. Like many other consequences of twenty-first century technology, we suspect that the emphasis will move toward immediacy; immediacy in focus and in utility. There will be increased opportunity for immediacy of parent interventions and increased emphasis on immediate impact on the child. However, as was noted at the outset of this chapter and is abundantly evident in the vast literature on parenting influences on child development, the effects of a given potential influence are not simply determined and easily disentangled from other co-occurring influences, with important critical and fundamental aspects of genetic and environmental forms of influence still to be discovered and fully understood. Also, parenting occurs across a life course of many years, and the impacts of parenting are both direct and indirect, immediate and deferred. A challenge for the next generation of scholarship will be to figure out how to incorporate the challenges of consideration of multiple genetic and environmental influences, context as an important consideration, the shifting patterns of family organization, and the best use of new technologies and advances in methodology to understand the complete impact of parenting behavior on child development and the optimal interventions that parents can employ in a rapidly changing cultural context.

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