A Developmental Perspective on Peer Rejection, Deviant Peer Affiliation, and Conduct Problems among Youth

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Abstract

Peer rejection and deviant peer affiliation are linked consistently to the development and maintenance of conduct problems. Two proposed models may account for longitudinal relations among these peer processes and conduct problems: the (a) sequential mediation model, in which peer rejection in childhood and deviant peer affiliation in adolescence mediate the link between early externalizing behaviors and more serious adolescent conduct problems; and (b) parallel process model, in which peer rejection and deviant peer affiliation are considered independent processes that operate simultaneously to increment risk for conduct problems. In this review, we evaluate theoretical models and evidence for associations among conduct problems and (a) peer rejection and (b) deviant peer affiliation. We then consider support for the sequential mediation and parallel process models. Next, we propose an integrated model incorporating both the sequential mediation and parallel process models. Future research directions and implications for prevention and intervention efforts are discussed.

Keywords

peer rejection; deviant peer affiliation; childhood conduct problems

Conduct problems, a term used to describe externalizing (e.g., aggressive, antisocial) behaviors more broadly, as well as to encompass the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; DSM-5)* [1–2] diagnoses of oppositional defiant disorder (ODD) and conduct disorder (CD), are a major public health concern and represent the most frequent reason for referrals to outpatient child mental health clinics [3–5]. Prevalence rates of these problems are estimated to be between 2% to 16% depending on the population under consideration and the sampling and assessment measures used [4, 6–9]. Furthermore, lifetime prevalence rates for ODD and CD were estimated to be 10.2% [8] and 9.5% [9], respectively, based on a nationally representative sample of over 3,000 adults in the US.

Children with conduct problems are a very heterogeneous group. They engage in a broad range of problem behaviors and experience psychopathology and impairment in multiple areas that are generally more severe and chronic than that experienced by other clinic-referred children [10–13]. Left untreated, aggressive and oppositional behaviors among children often become persistent, resulting in a poor prognosis in terms of antisocial and criminal behavior in adolescence and adulthood [14–16] and a number of additional sequelae, including school failure and dropout, depression, and substance use [17–20]. Moreover, the financial costs of persistent conduct problems are staggering with Cohen [21] estimating the lifetime cost of a career criminal at over 2 million dollars. The pernicious course, impairment, and societal costs associated with serious conduct problems have triggered a wealth of research aimed at understanding the developmental trajectories of conduct problems, as well as correlates and mechanisms associated with these trajectories in an effort to design and inform prevention and intervention programs.

Although a range of correlates of persistent conduct problems have been identified, we focus on peer processes in the present review for several reasons. First, the developmental significance of peer experiences is indisputable, and children's peer relationships are linked inextricably to their adjustment and functioning across childhood and adolescence [22]. Moreover, peer processes can be identified efficiently in the school setting, the primary venue for most preventive interventions, and likely serve an increasingly important role in maintaining and/or exacerbating conduct problems across childhood and adolescence.

Researchers have identified at least two peer factors/processes that are associated with and confer risk for conduct problems: (a) peer rejection/coercion and (b) deviant peer affiliation/deviancy training [23–26]. Historically, conceptualizations of peer rejection and deviant peer affiliation are considered “snapshots” describing social standing and social network construction (e.g., whether the child is rejected by peers, whether the child has deviant friends). More recently, the focus of peer relations research has shifted from this snapshot or categorical approach toward understanding the processes that underlie particular peer experiences. Two processes that have emerged from this shift in focus are peer coercion and deviancy training. Peer coercion refers to a social-interactional process involving mutually escalating coercive-countercoercive interactions that often accompany peer rejection [27–28]. Coercive behavior (e.g., negative, aggressive responding) is shaped by short-term social contingencies such as stopping aversive events like teasing (negative reinforcement) and in attaining attention and access to desired activities and materials (positive reinforcement) [29]. Deviancy training refers to the social-interactional process underlying deviant friendships whereby peer interactions shape and encourage subsequent acts of antisocial behavior [30]. This training occurs when children talk about deviant topics, engage in behavior that imitates norm-violating activities, and respond in a manner that indicates approval or endorsement of such talk and imitation [31–32]. Deviancy training also may be reflected in active collusion and co-participation in deviant acts by peers [33]. Given these conceptual similarities in terms of process and categories, for the current paper, we consider peer coercion in conjunction with peer rejection, and deviancy training in conjunction with deviant peer affiliation.

With regard to antisocial behavior, peer rejection and deviant peer affiliation typically have been construed as two sequentially linked processes that mediate the link between early externalizing behavior problems and more serious conduct problems in adolescence, with peer rejection operating in early childhood and deviant peer affiliation playing a stronger role in adolescence [19, 34–35]. More specifically, the sequential mediation model posits that existing coercive and disruptive behavior problems that are shaped by parenting and home environments in early childhood (e.g., poor self-control, physical aggression) are met with rejection by peers because these behaviors violate accepted developmental and social norms, and rejection by the normative peer group subsequently fosters associations among antisocial children. These deviant peer groups, then, provide a proximal context in which antisocial behaviors are expressed and valued, and deviant peers directly influence disruptive children to commit antisocial acts [36–37].

An alternative explanation of the relations among peer rejection, deviant peer affiliation, and conduct problems is the parallel process model [23, 38]. In this model, peer rejection and deviant peer affiliation are conceptualized as distinct processes of escalating coercive interchanges and deviancy training that may be operating simultaneously, beginning to unfold shortly after the transition from preschool to kindergarten [28, 38–41]. Thus, peer rejection and deviant peer affiliation may both uniquely, or together jointly, increment risk for conduct problems.

There is a dearth of empirical evidence examining both peer processes—peer rejection/coercion and deviant peer affiliation/deviancy training—as they relate to conduct problems and antisocial outcomes within the same study. Indeed, we know of only five studies to date [33, 38, 41–43] that have empirically tested integrated models of conduct problems and peer relations longitudinally. Notably, only one of these studies concurrently compared the sequential mediation and parallel process models in the prediction of conduct problems [43]. Thus, there is a critical lack of research empirically evaluating these competing explanations.

The present paper evaluates the current research on the longitudinal associations among conduct problems and peer processes from a developmental psychopathology perspective. Central to adopting a developmental psychopathology perspective is moving toward a process-level understanding of the multiple influences on normative and atypical behavior and considering the dynamic and transactional manner through which children and their environments interact throughout development [44–46]. In addition, we take note of Cicchetti and Toth's cautions against expecting invariant relations between causes and outcomes and instead presume novelty and change in observed behavior [44]. These guiding principles underpin the developmental model of peer rejection, deviant peer affiliation, and conduct problems that we present, which incorporates both the sequential mediation and parallel process explanations across developmental periods.

Overview of the Present Review

As an overview, we first provide background information and a working conceptualization of the primary processes under consideration. Given the paucity of research on integrated

models accounting for the longitudinal relations among conduct problems and peer processes, we review existing theoretical models and evidence for the associations among conduct problems and (a) peer rejection and (b) deviant peer affiliation. Then we consider empirical support for the (a) sequential mediational and (b) parallel process models. Based on the reviewed literature, we next propose a theoretical framework for the longitudinal associations among conduct problems and peer processes that combines person- and variable-centered approaches to potentially address discrepancies in the literature. Specifically, we assert that the sequential mediational and parallel process models are not mutually exclusive. Instead, each model may account for the longitudinal associations among conduct problems and peer processes among *particular subgroups* of youth following distinct developmental trajectories of conduct problems. Last, we consider clinical implications of the proposed model and offer suggestions for future research aimed at unpacking the complex longitudinal relations among conduct problems, peer rejection, and deviant peer affiliations.

The literature regarding peer relations and conduct problems is mixed for a variety of conceptual and methodological reasons, including consideration of different types of conduct problems and peer processes, examination of distinct developmental periods, and different study designs (e.g., cross-sectional vs. longitudinal, inclusion of boys only vs. both sexes). These distinctions naturally affect the conclusions that can be drawn and thus influenced the studies selected for this paper, as detailed below.

First, because there is a paucity of research specifically considering ODD and CD as they relate to peer processes, and because there exists a large degree of conceptual overlap between conduct problems and broader measures of externalizing behaviors, we considered studies examining the role of peer processes on aggression, antisocial behaviors, delinquency, and violence. In this review, terms used by the authors of the reviewed studies are used to describe their respective studies, and “conduct problems” is used to refer to problem behaviors reflected in the broad constructs of aggression, antisocial behavior, delinquency, and violence.

Developmentally speaking, there are periods across the lifespan during which the presence of some conduct problem behaviors is considered transient and relatively normative. For instance, physically aggressive behavior is observed among many children in early childhood, typically reaching a peak around age 3, after which it decreases sharply over the course of early development [20, 47–48]. Persistently elevated levels of physical aggression after school entry are rare [20] and are associated with the aforementioned problematic outcomes [17–20]. Along with this observed general decline in physical aggression, there is a shift in the nature and/or form of aggression from school entry to later childhood and adolescence, such that verbal (e.g., insults, threats, name-calling) and relational (i.e., threatening the social standing or reputation of others through gossip and exclusion) aggression gradually increase across these developmental periods [49–50]. Similarly, distinctions based on overt (e.g., stubbornness, temper tantrums, fighting) vs. covert (e.g., lying, cheating, truancy, stealing) antisocial behaviors suggest that overt antisocial behaviors typically decrease across childhood and adolescence, whereas covert antisocial behaviors increase [51]. Moreover, non-violent antisocial behavior (e.g., shoplifting, truancy) increases

in frequency between the ages of 10 and 17 years [52]. Increases in these behaviors can be conceptualized as behavioral manifestations of the normative increases in sensation seeking and risk taking during the adolescent years [53–54], which typically are not associated with long-term maladaptive outcomes and thus often considered normative [55]. Taken together, different types of conduct problems are expected to manifest across development, and thus, considering normative levels of conduct problems within particular developmental periods is important in interpreting research findings.

In addition, although we focus on peer rejection and deviant peer affiliation, other peer processes (e.g., peer victimization [56–59]) may play a role in the developmental trajectories of conduct problems. Studies examining peer victimization were excluded because despite conceptual overlap and high correlations between peer rejection and victimization [60], empirical evidence is mixed in terms of whether rejection plays a mediating [61] or moderating [62] role between aggressive behavior and victimization by peers.

Throughout this review, we primarily consider studies using a longitudinal framework. Because the co-occurrence of peer rejection and deviant peer affiliation with conduct problems is already well-established in the literature [22, 63–66], we focus specifically on studies that maintain some temporal separation between peer rejection and/or deviant peer affiliation (i.e., the presumed risk factors) and conduct problems (i.e., the presumed outcome). This noted, we acknowledge that relations among conduct problems and peer processes are likely transactional, a point to which we return in presentation of existing models.

Last, we propose a developmental model that accounts for longitudinal associations among conduct problems and peer processes that is intended to be a framework that is applicable to both boys and girls. There is some empirical and theoretical support for sex differences in developmental trajectories of conduct problems [67–72]; in addition, in terms of form, girls are typically more indirectly aggressive than boys, whereas boys are more physically aggressive than girls [73–75]. There is also some evidence suggesting that boys and girls respond differently, biologically and socially, to peer provocations, with males exhibiting patterns that are more consistent with externalizing problems than females [76–77]. Boys are also more likely to affiliate with deviant peers than girls [78–79]. Thus, it is possible that mechanisms underlying the longitudinal associations among conduct problems and peer processes differ by sex; however, there currently is not enough empirical research to support distinct models among boys vs. girls.

With these notes in mind, we next provide working conceptualizations of the processes under consideration. We discuss several theoretical models of the development of conduct problems, followed by empirical support for multiple trajectories of these problems. Then, for each of the peer processes, we evaluate literature examining their relations with conduct problems.

Conduct Problems

Theoretical models of antisocial behavior development [18–19, 68, 80] posit distinct developmental trajectories of antisocial behaviors that are thought to be associated with

specific etiologies, correlates, and outcomes. For instance, Moffitt's model [18] hypothesizes two mutually exclusive subgroups of antisocial youth: life-course persistent youth, who are characterized by high levels of aggression and antisocial behavior throughout development and continue to be violent in adulthood; and adolescence-limited youth, who engage in aggressive and antisocial behaviors primarily during adolescence. Conduct problems exhibited by life-course persistent youth are conceptualized as stemming from biologically based neuropsychological risk factors that interact with inadequate parenting. Conduct problems exhibited by adolescence-limited youth are posited to result from "social mimicry" of the antisocial style of life-course persistent youth, and are not hypothesized to be associated with pathological backgrounds [55]. Patterson et al.'s model [19] also posits two distinct trajectories toward adult criminality: early starters, who experience coercive parenting, school failure, and behavior problems beginning in childhood; and late starters, who experience poor parental monitoring, oppositional behavior, and deviant peer involvement beginning in early adolescence. Another model put forth by Loeber and Stouthamer-Loeber [80] suggests five potential trajectories for conduct problems, including (a) preschool onset with comorbid attention problems, (b) middle childhood onset, (c) high levels of aggression that desist in childhood, (d) high levels of aggression that desist in adolescence, and (e) late adolescent onset.

Each of these three models is intended to account for developmental trajectories of conduct problems among boys and girls; nevertheless, it is unclear how well these models apply to girls. A model posited by Silverthorn and Frick [68] suggests that because of strong socialization pressures to avoid conduct problems, girls may be less likely to follow a childhood-onset path. Similar risk factors identified for early-onset boys (e.g., attention problems, parent-child coercion) may interact with stressors associated with adolescence, resulting in a delayed-onset path for girls. This delayed-onset path among girls is hypothesized to be analogous to the childhood-onset pathway among boys in terms of correlates and impairment.

Taken together, these models suggest that not all youth will follow similar conduct problem pathways. Given this likelihood, various research groups have used person-centered statistical techniques to empirically define distinct trajectories of conduct problems throughout childhood and adolescence [16, 67, 81–85]. Results have converged on identifying at least one consistently high-risk conduct problem trajectory (mapping onto theoretically proposed life-course persistent youth or early starters) and one low-risk trajectory marked by consistently low levels of aggression. Support for increasing (i.e., "adolescent limited/late starters") [16, 85]; decreasing (i.e., "childhood limited") [85–88]; and moderate stable (i.e., "low-level chronic") [67, 89–90] trajectories also has been found, but varies depending on sample and types of conduct problems examined. In sum, despite differences in terms of the number and type of trajectories identified, the literature supports the existence of subgroups of antisocial youth who vary in their risk for persistent conduct problems.

Lending further support to the utility of these distinct trajectories, class membership in these empirically defined subgroups is associated with distinct distal outcomes. For example, Schaeffer and colleagues [84] identified four trajectories of aggressive-disruptive behavior

(i.e., low, chronic high, moderate, and increasing) from grades 1 to 7 in a contextually at-risk sample of boys. Youth who followed the chronic high and increasing trajectories of aggressive-disruptive behavior were at significantly increased risk for juvenile and adult arrest, as well as CD and antisocial personality disorder (ASPD) diagnoses at age 19 (odds ratios [ORs] for comparisons against membership in the stable low trajectory ranged from 8.64 to 26.58). However, boys following the moderate aggressive-disruptive trajectory were at significantly increased risk for juvenile (OR = 5.50) and adult (OR = 3.71) adjudication but not for CD or ASPD. It is notable that in this sample, 9% to 16% of boys following the stable low aggressive-disruptive trajectory did exhibit antisocial outcomes in later adolescence and young adulthood, with poverty and race/ethnicity playing a significant role in predicting discordant cases in the stable low class [91]. Taken together, the current theoretical and empirical models of conduct problems document the existence of relatively homogeneous, distinct subgroups of children who follow different developmental pathways. A necessary next step, then, is to determine whether distinct mechanisms operate within particular subgroups of youth or whether it is differential exposure to risk processes (e.g., peer processes, discussed next) that confer risk for following specific trajectories.

Peer Processes

During childhood, peer relationships serve important developmental functions, such as providing contexts in which children can acquire new social skills; learn to self-regulate and solve interpersonal conflict; and discover social roles, norms, and processes [24, 92–93]. Thus, rejection by peers may deprive children of beneficial social experiences and opportunities to develop social and cognitive skills [64].

Peer relationships become more salient throughout development as the intensity and quality of friendships and the impact of peer relationships increase with age [26]. By pre- and early-adolescence, normative increases in susceptibility to peer influence [94] are often coupled with decreases in parental influence and monitoring [95], arguably leaving peers as the primary socializing factor in the behavior and functioning of adolescents. Thus, the impact of affiliating with deviant peers and exposure to deviancy training may be particularly salient during adolescence. We next consider models for the interrelations between peer rejection and deviant peer affiliation with conduct problems.

Peer rejection

Peer rejection has been characterized, on the one extreme, as a personality trait, referring to the “rejected child” as a *type* of child in much the same way as some researchers would consider introverted children as *types* of children, for example. On the other extreme, peer rejection has been viewed as a characteristic of the peer group separate from the individual in question [96]. We adopt a social learning perspective in which peer rejection is viewed as a coercive social contingency engendered by aggressive, oppositional behavior [27]. Thus, peer rejection is not simply an event or an interpersonal stressor happening *to the child*, but rather an elicited environmental response to the child’s behavior. This perspective is in line with this review’s developmental psychopathology framework and focus on individual-environment transactions as well as other peer relations research [49].

There are four primary explanations for the association between conduct problems and peer rejection. First, peer rejection may be a marker for some child characteristic or disturbance without playing a causal role in subsequent conduct problems (i.e., “incidental model”) [65]. In this model, both peer rejection and conduct problems are the result of some underlying child characteristic (e.g., propensity to behave aggressively, poor self-control, callous-unemotional (CU) traits) that accounts for both peer rejection and conduct problems. Thus, both peer rejection and conduct problems reflect negative behavioral manifestations of the same underlying pathogenic process.

Alternatively, peer rejection may confer risk for conduct problems, consistent with the substantial evidence that peer rejection is associated prospectively with conduct problems [23–24, 64–65, 97–98]. Indeed, peer rejection, particularly stable rejection patterns, uniquely predicts later externalizing problems even after controlling for concurrent externalizing symptoms [96, 99–101]. Several different processes may account for this prospective relation. Rejected children have reduced opportunities for positive peer interactions and may not develop appropriate social skills; consequently, children experiencing rejection may demonstrate fewer effective responses to peer conflict and an increased likelihood of responding to peer provocations with aggressive, antisocial behaviors [27, 63–64]. Supporting this argument is research showing that rejected children are less socially and cognitively skilled than their more accepted peers [102]. Researchers also have found that rejected children often interact with other rejected children in play situations [103], which may result in rejected children’s modeling of one another’s undesirable or aggressive behaviors. It is also possible that the experience of being rejected by peers shapes children’s social information processing patterns by increasing their tendency to make hostile attributions about their peers’ behavioral intentions [24, 104]. In turn, hostile attribution biases may increase the probability of aggressive responding and consequently mediate the relation between peer rejection and increasing conduct problems [105].

Aggressive behaviors and conduct problems also may directly contribute to rejected status. Children who are disruptive to the larger peer group are often actively disliked and rejected [23]. For instance, a series of observational play-group studies involving unacquainted school-age boys revealed that verbal and physical aggression preceded the emergence of peer rejection [106–109], suggesting that aggressive behaviors can be considered a proximal determinant of peer rejection [110]. Indeed, compared to non-rejected peers, rejected boys were more likely to initiate instrumental aggression, to react aggressively to provocation, and to escalate aggressive interchanges by refusing to submit or negotiate [106, 108–109]. Additional research that has distinguished between stable and transient peer rejection in childhood suggests that aggression and low prosociality predict stable peer rejection [111] and chronic low levels of peer acceptance [99]. Taken together, these lines of research suggest that socially unskilled and aggressive children are likely to be rejected by their normative peers during the formation of new peer groups.

Evidence also supports bidirectional and transactional models in which the presence of aggression contributes to peer rejection, which then contributes to persisting conduct problems. Specifically, several investigators have identified a subgroup of aggressive-

rejected children who are frequent targets of countercoercive harassment [112–113]. These escalating coercive-countercoercive behaviors then serve to maintain and exacerbate aggressive behavior patterns [27, 114].

Although findings tend to support a positive association between peer rejection and aggression, particularly in early elementary school, there is evidence that some aggressive children are not rejected, and in some cases, are identified by peers as popular or “cool” later in elementary school and during adolescence [115–116]. Thus, associations among these processes likely differ depending on the age period considered. Recent research by Ostrov and colleagues [117] found that when considering different forms (i.e., physical versus relational) and functions (i.e., proactive versus reactive) of aggressive behavior, differential associations with rejection are observed even among 3–4 year old children. Specifically, although reactive relational aggression was associated with prospective increases in peer rejection, proactive relational aggression was associated with decreases in peer rejection. In addition, the association between aggressive, antisocial behaviors and peer rejection is not found among groups in which the norms regarding the use of aggression are more positive [118] or among classrooms with high levels of bullying and aggression by popular youth [119], suggesting that context also may influence how peers perceive conduct problems and thus whether these youth experience peer rejection.

Taken together, existing literature suggests that peer rejection and conduct problems are positively associated for some, but not all, children. These discrepancies regarding the associations among conduct problems and peer rejection suggest that consideration of individual differences in trajectories of conduct problems and form and function of conduct problems may help to reconcile these different findings. However, it also is likely that alternative peer processes, such as deviant peer affiliations, predict conduct problems and can account for disparate findings in the literature. To examine this possibility, we consider the role of deviant peer affiliations on the development and maintenance of conduct problems next.

Deviant peer affiliation

Although children with conduct problems generally are rejected by their normative peers, by early adolescence, many aggressive and antisocial youth develop friendships with peers or are members of peer groups who exhibit similar aggressive behavioral dispositions [32, 120–123]. There is some evidence that this pattern exists among younger children as well [28, 38–40, 124]. For example, members of teacher-identified cliques of 4-year-olds were found to be moderately similar in aggression level when assessed by independent observers [124]. Additionally, Snyder and colleagues [40] demonstrated that 50% of aggressive 4- to 5-year-old children’s friends were aggressive based on teacher report, compared with 12% of non-aggressive children’s friends.

Several theoretical models regarding the role of deviant peer associations in the development of conduct problems have been proposed, including the individual characteristics/selection model [124], the peer influence/socialization model [126–127], and the social interaction/enhancement model [19, 128]. Each of these models is reviewed below.

Individual characteristics/selection model—The individual characteristics or selection model [126] views affiliation with deviant peers as an epiphenomenon that plays no causal role in the development of conduct problems. This perspective is consistent with the incidental model for peer rejection and suggests that preexisting *individual* characteristics (e.g., CU traits, low self-control, antisocial/aggressive behaviors) lead independently to both association with deviant peers and more serious conduct problems and delinquency [125]. In other words, children with conduct problems may proactively select into groups with other children with conduct problems, partly because of a shared tolerance or value of deviant attitudes or behaviors [104], and also potentially because their mutual selection allows them to dominate other peers and to have better access to resources in the larger peer group [120, 129].

Several studies provide support for the individual characteristics/selection model. For instance, Poulin and Boivin [129] found that boys with similar levels of proactive physical and verbal aggression were more likely to initiate and maintain friendships over time, whereas boys who had discordant levels of physical and verbal aggression were more likely to terminate their friendships. Furthermore, some studies have found that deviant peer association does not predict later delinquency after accounting for prior levels of antisocial behavior. For example, Coie and colleagues [130] found that aggressiveness and delinquency during early adolescence, but not deviant peer affiliation, predicted later police arrests; instead, deviant peer affiliation was predicted by aggressiveness in middle childhood. Similarly, Tremblay and colleagues [131] found that the association between deviant peer affiliation and delinquency was the result of their common link to earlier antisocial behavior; specifically, the relation between deviant peer affiliation and delinquency became non-significant after controlling for prior levels of conduct problems.

Peer influence/socialization model—In contrast to the selection model, the peer influence model incorporates a social learning perspective and suggests that exposure to deviant peers is the *cause* of continuation or escalation of antisocial behavior [27, 121–122, 132]. From this perspective, deviant friends set up a context, or “developmental niche,” in which aggressive behaviors and attitudes are valued and expressed [133]. Thus, deviant peer groups are hypothesized to provide extensive opportunities for shaping deviant attitudes and behavior through mutual discourse, collusion, modeling, and reinforcement [121].

In support of this peer influence/socialization model, most adolescents become involved with deviant peers prior to exhibiting antisocial behaviors themselves [134–135]. For instance, Elliott and colleagues [126] identified association with delinquent peers as the only variable, other than prior delinquency, to have a strong influence on subsequent delinquency among both males and females and for both minor and serious delinquency. Furthermore, Keenan and colleagues [136] found that exposure to deviant peers resulted in subsequent engagement in delinquent behavior among previously non-delinquent male adolescents. Additionally, Coie et al. [130] used survival analysis to demonstrate that the first arrest among early adolescent youth in deviant peer groups begins at or after the time at which deviant peer associations are identified. The peer influence/socialization model is also supported by the iatrogenic effects observed in prevention and intervention studies intended to target and mitigate antisocial behaviors [137]. Thus, there is convergent evidence

demonstrating that affiliation with deviant peers precedes more serious conduct problems and delinquency, at least among some children.

Social interaction/enhancement model—The social interaction/enhancement model attempts to reconcile the competing findings in support of both the individual characteristics/selection model and the peer influence/socialization model. This model posits that individual characteristics (e.g., CU traits, self-control, impulsivity) interact with or are moderated by peers' deviancy in predicting later antisocial outcomes [19, 128]. From this perspective, deviant friends are not necessary for high-risk children to engage in antisocial behavior. Children with existing externalizing behaviors are thought to actively affiliate with deviant peers and to seek out peer contexts in which their deviant behaviors are accepted [103], similar to the assumptions of the individual characteristics/selection model. In turn, these antisocial youth who are members of deviant peer groups become even more deviant, consistent with the peer influence/socialization model. In sum, high-risk children can engage in antisocial behavior irrespective of affiliations with deviant peers; however, affiliations with deviant peers facilitate increases in antisocial behavior [26, 138].

In support of this model, Simons et al. [135] found that among young adolescent males, the existence of conduct problems predicted their involvement with deviant friends, which in turn predicted later criminal justice system involvement. They also found an interaction between children's ODD behaviors and their association with deviant peers; specifically, criminal justice system involvement was highest among youth with ODD and with deviant friends compared to youth who were high on only one of these features or low on both. Thus, deviant friends not only reinforce and model antisocial attitudes and behaviors, but also facilitate or coerce each other into deviant behavior [139].

Similar to the literature on associations among peer rejection and conduct problems, studies show that deviant peer affiliation predicts later conduct problems among some children, but not others. Again, these mixed findings highlight the possibility of different associations among affiliation with deviant peers and conduct problems within particular subgroups of children. This possibility is supported by research suggesting that youth with conduct problems and callous-unemotional (CU) traits exhibit higher levels of deviant peer affiliation compared to youth with conduct problems without CU traits [140].

The studies reviewed thus far have considered peer rejection and deviant peer affiliation separately. In the following section, we consider studies that have examined these peer processes concurrently, which can provide a more integrated understanding of associations among peer rejection, deviant peer affiliation, and conduct problems.

Integrated Peer Process-Conduct Problem Models

As previously discussed, there are two primary models that integrate peer rejection and deviant peer affiliation to account for persistent conduct problems: the sequential mediation model [19, 34, 141] and the parallel process model [38]. Though compelling models, to our knowledge, only five longitudinal studies to date simultaneously have considered both peer rejection and deviant peer affiliation in the prediction of conduct problems. Specifically,

Laird and colleagues [33] evaluated the sequential mediation model; Powers and colleagues [41], Snyder and colleagues [38], and van Lier and colleagues [42] evaluated the parallel process model; and Vitaro and colleagues [43] tested both models concurrently. Given the importance of these studies for the purposes of the current review, each is considered in greater detail below.

Laird and colleagues [33] tested whether peer rejection during childhood (ages 6–9) and affiliation with antisocial peers in early adolescence (age 13) sequentially mediate the link between early disruptiveness (age 5) and adolescent (age 14) behavior problems. They considered data from 400 youth recruited for the Child Development Project, a multisite longitudinal study of children's and adolescents' adjustment [142–143]. Laird et al. [33] did not find support for Patterson and colleagues' [19] sequential mediation model. Specifically, there was no direct link between early disruptiveness and later affiliation with deviant peers; thus, peer rejection could not be tested as a mediator of the hypothesized relations. Additionally, the relation between childhood peer rejection and adolescent conduct problems was not mediated by affiliation with deviant peers in early adolescence, potentially because of an initial weak link between peer rejection and deviant peer affiliation. Nevertheless, this low magnitude association contradicts the results of previously cited studies that report an association between peer rejection and affiliation with deviant peers was established [144–145].

In contrast, a more recent study by Vitaro et al. [43] which compared the sequential mediation and parallel process models, found that peer rejection and deviant peer affiliation from ages 7 through 13 mediated the relation between disruptive behavior at age 6 and violence at ages 14 and 15. They found no support for the parallel process model. Unlike Laird et al. [33] who assessed for friends' deviancy only at one time point, Vitaro and colleagues evaluated deviant peer affiliation over several years and used averages of deviant peer affiliations during childhood (ages 7–9) and early adolescence (ages 10–13). These additional indices of deviant peer affiliation thus enhance the reliability and developmental sensitivity of their measure.

In contrast to Vitaro et al.'s null findings regarding the parallel process model [43], both Snyder and colleagues [38] and Powers and colleagues [41] found support for the parallel process model. Snyder et al. examined relations among peer coercion (defined as peers' aversive reactions to and negative treatment of the target child) and deviancy training (defined by peer reinforcement of the target child's deviant talk) assessed via observation when children were in kindergarten. In this sample of 267 boys and girls, peer coercion, but not deviancy training, predicted overt conduct problems at the end of third or the beginning of fourth grade, whereas deviancy training predicted later covert conduct problems. Powers et al. [41] demonstrated that first grade aggressive-disruptive behaviors predicted both peer rejection and affiliation with aggressive peers in second grade, and each of these peer processes predicted third grade aggressive-disruptive behavior after controlling for initial levels of aggression. Furthermore, peer rejection and deviant peer affiliation were not associated concurrently, suggesting that these are independent and concurrent developmental pathways. Notably, both Snyder et al.'s [38] and Powers et al.'s [41] participants were considerably younger than the participants used in the Vitaro et al. [43]

and Laird et al. [33] studies. These discrepancies suggest that peer rejection and deviant peer affiliation operate as parallel processes among children who would be considered early starters or presumably life-course persistent youth.

Important to note, these four studies [33, 38, 41, 43] all primarily used a variable-centered approach, whereby early aggression, peer rejection, affiliation with deviant peers, and later violence or antisocial behavior were assessed at different time points and analyzed via structural equation modeling. Using path models may obscure individual differences with regard to peer process-conduct problem associations, which is particularly problematic given both theoretical and empirical support for multiple pathways in the development of conduct problems. Consistent with this concern, when Laird et al. [33] conducted exploratory person-centered analyses, which used cut points and investigator assignment to four trajectories based on patterns of externalizing behavior problems, they found differential associations between peer processes and antisocial pathways. Specifically, peer rejection was most common among the “always” and “decreasing” conduct problems groups, high levels of affiliation with deviant peers were most characteristic of the “increasing” and “always” conduct problems group, and members of the “always” conduct problems group were most likely to experience both peer rejection in childhood and high levels of deviant peer affiliation in early adolescence. These findings thus illustrate that consideration of rejection and deviant peer affiliation over time from a person-centered perspective could permit a more detailed and nuanced examination of the relations among developmentally relevant peer processes and conduct problems throughout childhood and adolescence.

Besides this exception with the exploratory analyses of Laird et al. [33], the study by van Lier and colleagues [42] is the only research among this group of studies that took a person-centered approach to examining the developmental links among conduct problems, peer rejection, and deviant peer affiliation. Specifically, these researchers used growth mixture modeling to identify subgroups of relatively homogenous youth following similar trajectories of antisocial behavior from ages 7–10 in one sample of 289 Dutch children, and from ages 9–12 in a sample of 445 French-Canadian children. Additionally, van Lier et al. used multiple repeated measures of both peer rejection and friends’ antisocial behavior. In both samples, three trajectories of antisocial behavior were identified: high, moderate, and low. The primary feature differentiating the Dutch and Canadian samples was a desisting trend of antisocial behavior in the Dutch sample, which contrasted with an increasing trend in the Canadian sample. Children following the high antisocial behavior trajectory in both samples had the highest levels of peer rejection, and among the Dutch sample, almost all children in the high antisocial behavior trajectory experienced peer rejection between the ages of 7 and 10. Furthermore, compared to children following a low antisocial behavior trajectory, those following a moderate trajectory experienced more rejection by peers across samples. Trajectories of antisocial behavior also were differentially associated with friends’ antisocial behaviors. In the Dutch sample, following a high trajectory of antisocial behavior was associated with stable and high levels of friends’ antisocial behavior, whereas following the moderate or low trajectories of antisocial behavior was associated with decreasing levels of friends’ antisocial behavior. In the Canadian sample, following the high antisocial behavior trajectory was associated with accelerated growth in friends’ antisocial behavior.

Taken together, empirical evidence in support of the sequential mediational and parallel process models is mixed. Methodological and sampling differences may explain these discrepant findings; however, an alternate explanation is that different models may be operating among different subgroups of children. Indeed, findings from the two studies that implemented some form of a person-centered approach [33, 42] suggest that there are subgroups of youth with distinct patterns of peer process-conduct problem associations. As such, more studies that simultaneously examine both peer rejection and deviancy training in the prediction of later conduct problems and combine person- and variable-centered analytic approaches could provide a more nuanced understanding of these relations.

In addition to a lack of concurrent examination of the sequential mediation and parallel process models, there are several gaps in the existing literature on peer rejection, deviant peer affiliation, and conduct problems across childhood and adolescence. First, despite hypothesized relations among peer rejection and deviant peer affiliation, most research to date examines these processes separately. Second, of the five studies that have simultaneously examined both peer processes [33, 38, 41–43], only two [42–43] have used repeated assessments of peer rejection and deviant peer affiliation. This approach is problematic from a developmental psychopathology perspective, which suggests that peer processes are dynamic and potentially changing over time. Furthermore, despite a wealth of literature supporting the existence of multiple subgroups of youth following distinct trajectories of conduct problems [67, 81, 83–84], only two of these studies [33, 42] used a combination of person- and variable-centered approaches. In the model proposed below, we seek to address these gaps in the literature and to provide one potential account of the expected relations among peer rejection, deviant peer affiliation, and conduct problems during childhood and adolescence.

Proposed Conceptual Model

The proposed conceptual model posits that the mechanisms accounting for the longitudinal associations among conduct problems and peer processes are distinct among different subgroups of youth. This model represents a framework that may help to reconcile inconsistencies, as well as address the aforementioned gaps in the extant literature. As noted, there is theoretical [18–19] and empirical [67, 81, 83–84] support for the existence of multiple subgroups of children following distinct trajectories of conduct problems. In addition, conduct problems are associated with peer rejection in childhood [23–25, 64–65] and deviant peer affiliation in later childhood and adolescence [24, 26, 121–123]. Last, numerous studies confirm that distinct conduct problem trajectories are associated with unique predictors, correlates, and outcomes [18–19, 55, 67, 80, 84]. Given these findings, it stands to reason that the mechanisms underlying the association among conduct problems and peer processes may differ depending on membership in particular conduct problem trajectory classes. Furthermore, if we contend that peer rejection and deviant peer affiliation are dynamic processes, then a comprehensive model must also consider other variables that would help to predict which subgroups of aggressive children are rejected by peers and which are not (e.g., popularity/social standing; proactive/instrumental aggression versus reactive/impulsive aggression; physical versus relational aggression) [116–117], as well as factors that may moderate relations between rejection and deviant peer affiliation (e.g.,

presence of CU traits; parental monitoring; community violence exposure; classroom levels of aggression) [140, 147–150].

Consistent with the existing literature, we hypothesize that heterogeneity in conduct problems across childhood and adolescence can be better captured by subgroups of youth following similar, more homogeneous developmental trajectories of antisocial behaviors, as opposed to one uniform pathway across all individuals. Given the importance of considering continuity and discontinuity in development, assessing conduct problems prospectively and throughout different developmental periods (e.g., childhood and adolescence) would provide a sound base from which to explore hypothesized relations among conduct problems and peer processes. Trajectory models estimated separately in childhood (up to grade 5 or age 11) and adolescence (grades 6–12 or ages 12–18) may obscure important developmental differences. For example, youth exhibiting high levels of conduct problems in sixth grade may have followed a chronic high conduct problems or increasing conduct problems trajectory prior to sixth grade (an example of equifinality [146]). Thus, youth with distinct childhood trajectories would be grouped together in this example, possibly obfuscating important developmental differences. Based on existing theoretical and empirical evidence, at least four distinct conduct problem trajectories across childhood and adolescence could be expected [16, 18, 42, 67, 81–85]: a chronic high conduct problems group, an increasing conduct problems group, a decreasing conduct problems group, and a stable low (“normative”) conduct problems group.

We furthermore expect between-group differences in the mechanisms underlying relations among conduct problems and peer processes. In other words, we hypothesize that a sequential mediation model (Figure 1) may better capture conduct problems-peer relations associations among some subgroups of youth, whereas a parallel process model (Figure 2) may more accurately capture these associations among other subgroups of youth. Specifically, we first hypothesize that the conduct problems-peer relations association among youth following a chronic high conduct problems trajectory would best be captured by a parallel process model, in which peer rejection/coercion and deviant peer affiliation/deviancy training are operating concurrently beginning in childhood. These children are conceptualized as those with existing neurobiological and environmental vulnerabilities for conduct problems (i.e., Moffitt’s life-course persistent youth/Patterson’s early starters), putting them at risk for both rejection by normative peers and affiliation with deviant peers. This possibility is consistent with research indicating that rejected children whose peers endorse deviant discourse and reinforce deviant play are more likely to engage in their own deviant discourse and play [132]. Across development, the impact of peer coercion and peer deviancy training may wax and wane; however, given underlying predispositions that confer risk for antisocial behaviors (e.g., CU traits, impulsivity), we hypothesize that at any point in development, either peer process independently may be sufficient to elicit antisocial behaviors. For instance, a child who is already at heightened risk for antisocial behavior due to impulsivity may be more likely to respond to coercive peer interactions aggressively. Similarly, the same impulsive child may be more susceptible to deviant peer influence. Furthermore, peer coercion and selection into and socialization by deviant peer groups may together, synergistically, increment additional risk for persistent conduct problems among youth with existing neurobiological and/or environmental vulnerabilities.

Alternatively, a sequential mediation model may better account for conduct problem-peer process relations among youth following an increasing conduct problems trajectory (i.e., Moffitt's adolescence-limited youth/Silverthorn and Frick's delayed-onset girls). Among these children, peer rejection in childhood may not be sufficient to trigger increasing levels of conduct problems, perhaps because these children have the cognitive capabilities to better cope with rejection without escalating coercive behavior or because they are more likely to react to rejection with withdrawal and internalizing, as opposed to externalizing, behaviors. However, if these children are consistently rejected over time, they would be expected to affiliate with similarly rejected peers, at which point exposure to deviancy training could lead to later increases in conduct problems.

Youth following a desisting conduct problems trajectory across development (i.e., childhood-limited youth) are hypothesized to experience peer rejection and associated coercive processes during childhood, but not to progress to affiliating with deviant peer groups. Thus, peer rejection/coercion may account for elevated levels of conduct problems in childhood. However, consistent with observed decreases in the negative impact of peer rejection throughout development [151], these youth's conduct problems decrease over time. Perhaps because of other resilience factors such as parental monitoring, these youth do not progress to affiliating with deviant peers. Alternatively, these youth may be more likely to respond to peer rejection by withdrawal, and thus be more likely to experience anxiety or depression vs. conduct problems, consistent with evidence that peer rejection is associated with increased depressive symptoms [152].

Last, peer processes likely impact youth following a stable low conduct problems/"normative" trajectory as well. We hypothesize that among this subgroup of youth who are at low risk for engaging in antisocial behavior on the basis of biological or environmental predispositions (e.g., good cognitive/linguistic capabilities, easy temperament, low impulsivity/reactivity, consistent parenting/good parental monitoring), their experiencing both peer rejection in childhood and subsequent deviancy training in adolescence (i.e., sequential mediation model) is necessary to increment risk for persistent conduct problems. However, because these youth are least likely to experience both stable patterns of rejection and affiliation with deviant peers, any expression of conduct problems throughout childhood and adolescence would be expected to be relatively transitory and to parallel normative increases in sensation-seeking and risk-taking behavior in adolescence [45, 53].

Clinical Implications and Directions for Future Research

The reviewed literature and proposed conceptual model have important clinical implications. First, they highlight the importance of peer processes as potential targets of intervention among children at risk for conduct problems and emphasize the need to target both peer rejection and affiliation with deviant peers from a young age as research suggests that both of these processes are operating at school entry. Fortunately, peer processes are easily and efficiently identifiable within the school setting, which also serves as the primary venue for most preventive interventions. Among elementary school-aged children, classroom-wide intervention approaches that focus on establishing peer group norms that value prosocial behavior such as the Good Behavior Game [153–154] may be useful for reducing peer

reinforcement of deviant behaviors. Universal classroom interventions that aim to build a positive group climate also increase the cohesiveness and trust within the peer group and may lower peers' propensity to reject those who deviate from group norms and reduce the likelihood of adopting negative stereotypes about deviant children [155]. Interventions such as the Coping Power Program [156] and Problem-Solving Skills Training [157] may be delivered individually or in small-group format for children identified as engaging in peer coercion or deviancy training to augment classroom-wide intervention for those children most at-risk for persistent conduct problems. These interventions utilize cognitive and behavioral skills-based training to promote self-control and appropriate conflict management, and augment children's behavioral repertoire of strategies for coping with negative emotions, improving interpersonal problem-solving skills, developing and maintaining positive peer relationships, and avoiding or mitigating problematic ones [49].

Additionally, if peer rejection and deviant peer affiliation operate differently (i.e., in a sequential vs. parallel manner) among children who follow distinct trajectories of conduct problems as our model hypothesizes, then theoretically, intervention efforts could be tailored further to target different peer processes among subgroups of children who differ in their conduct problem trajectories in an effort to maximize the effects of available resources. For instance, if peer rejection and deviant peer affiliation are sequential processes, then integrating rejected children into the larger peer group through the aforementioned universal classroom-based interventions and teaching children to cope with peer rejection would potentially decrease the risk of later affiliation with deviant peers and persistent conduct problems. If, however, these peer processes unfold in parallel, targeting both peer rejection and deviant peer affiliation concurrently would be warranted. It is important to note that as the proposed model stands untested, the feasibility of taking a specific intervention approach based on a child's peer-conduct problem trajectory is limited. If, however, researchers could identify predictors (e.g., demographic characteristics, neurodevelopmental factors, contextual risk factors) of class membership in conduct problem-peer process trajectories present at school entry in existing longitudinal datasets, risk factor profiles could be developed to identify children who would most likely benefit from interventions targeting peer rejection, reducing peer deviancy training, or both.

To address current gaps in the literature and test the proposed model, future research must take a developmental psychopathology perspective that emphasizes individual differences in developmental trajectories and simultaneously considers multiple explanations for the relations among peer rejection, deviant peer affiliation, and conduct problems. First, it is imperative to assess conduct problems, peer rejection, and deviant peer affiliation concurrently and prospectively to allow for empirical testing of competing explanations for the co-occurrence of conduct problems and peer processes across different developmental periods. The complex interplay between these peer processes and their specific effects on the development of conduct problems only can be elucidated by concurrent and repeated assessment of these constructs beginning in early childhood, as the literature suggests that affiliations with deviant peers may come into play much earlier than adolescence [28, 38–40, 124]. Second, given a growing body of research suggesting that different forms and functions of aggression are associated with different etiologies, correlates, and outcomes [158–160], including the peer processes under consideration [117], future research that takes

into account both form and function of aggression rather than relies on a general measure of conduct problems could provide a more nuanced understanding of conduct problem-peer process relations. Third, the inclusion of CU traits in DSM-5 highlights the clinical importance of future research considering how youth with and without CU traits may be differentially represented in distinct conduct problem-peer process trajectories [161–162]. Fourth, using a combination of person- and variable-centered approaches may help to tease apart how peer processes and conduct problems are related over time. Person-centered modeling can be used to identify subgroups of youth following distinct trajectories of conduct problems (or, as noted above, trajectories of proactive/reactive/physical/relational aggression) and patterns of peer processes over time within each of these subgroups can be examined. This approach also would allow for a test of whether specific subgroups of youth following distinct conduct problem trajectories share particular demographic characteristics (e.g., sex), neurodevelopmental profiles (e.g., temperament, executive functioning, CU traits) [18–19, 161–162], or contextual risk factors (e.g., poor parental monitoring, community violence exposure) [147–150]. These analytic approaches will lead researchers closer to recognizing relevant predictors and mechanisms, as well as identifying more homogeneous subgroups of youth with distinct patterns of conduct problem –peer process relations, which may have different correlates, courses, and responses to intervention. Last, examination of these processes among samples that allow for comparisons among (a) boys and girls, (b) different ethnic/racial groups, and (c) different SES levels is lacking and should be pursued in future research. Such research is necessary to fully capture developmental continuity and discontinuity in peer rejection, deviant peer affiliation, and conduct problems, as well as to determine whether these processes operate differently among distinct groups over time.

Summary

In sum, several distinct conduct problem pathways from childhood to adolescence have been identified. Peer rejection in childhood and deviant peer affiliation in adolescence likely contribute to these trajectories, albeit in complex ways. Joint consideration of the sequential mediation and parallel process models provides a framework for linking these peer processes and conduct problems across childhood and adolescence. Future research that examines these processes concurrently, as well as tests potential moderators of the conduct problems-peer relations associations, will be useful for advancing our understanding of the interrelations among these processes. Such information has the potential to inform not only etiological models, but also prevention and intervention efforts aimed at mitigating susceptibility to high risk trajectories and thereby promote positive adjustment.

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Figure 1. Sequential mediation model hypothesized to be operating among subgroups of children exhibiting increasing conduct problem trajectories across childhood and adolescence.

Figure 2. Parallel process model hypothesized to be operating among subgroups of children exhibiting chronic high conduct problem trajectories across childhood and adolescence.