Published in final edited form as:
J Child Psychol Psychiatry. 2013 June ; 54(6): 661–669. doi:10.1111/jcpp.12017.

From Antisocial Behavior to Violence: A Model for the Amplifying Role of Coercive Joining in Adolescent Friendships

Mark J. Van Ryzin[1] and **Thomas J. Dishion**[1]
[1]Child and Family Center, University of Oregon, USA

Abstract

Background—Aggression is one of the more stable characteristics of child and adolescent development, and violent behavior in early adulthood is often foreshadowed by aggressive behavior in childhood and early adolescence. Considerable evidence has linked coercive family interactions to aggressive behavior in childhood, but less research has been conducted on the joint role of family and peer interaction in the escalation of aggression to violence in adulthood.

Methods—We coded family interactions at age 12–13 and friendship interaction at age 16–17 in a multiethnic sample of youth and families. Violence in young adulthood (age 22–23) was measured using self-report, criminal records, and parent report. We tested the hypothesis that a process of "coercive joining" in friendship interactions mediated the relationship between coercive family interactions and serious violence.

Results—We found that observed coercive joining in friendships at age 16–17 predicted early-adulthood violent behavior over and above an established tendency toward antisocial behavior. We also found that observed coercive family interactions at age 12 predicted early-adulthood violence, and that coercive joining with friends fully mediated this link.

Conclusions—These results significantly extend coercion theory by suggesting that coercive joining in the context of peer groups is an additional mechanism by which coercive processes in the family are extended and amplified to violent behavior in early adulthood. Our findings suggest the importance of addressing both individual interpersonal skills and self-organizing peer groups when intervening to prevent violent behavior.

Keywords

Coercion theory; adolescence; family processes; peer processes; violent behavior

Youth violence in the United States poses significant challenges. In 2009, violence (i.e., homicide) was the second leading cause of death for young people between ages 15 and 24 and the third leading cause of death among people age 25 to 34 (Centers for Disease Control and Prevention, 2012), and violence in this age group resulted in more than 750,000 nonfatal injuries that required medical treatment. Violence can also affect the health of communities by increasing health care and law enforcement costs, lowering property values, and disrupting access to public education (Mercy, Butchart, Farrington, & Cerdá, 2002).

Aggression and violence are one of the stable characteristics of child and adolescent development, and violent behavior in late adolescence and early adulthood is often

Correspondence: Mark J. Van Ryzin, Child and Family Center, 195 West 12th Ave., Eugene, OR 97401-3408. Ph: 541 346-4708. Fax: 541 346-4858. markv@uoregon.edu..

There is no conflict of interest with either author.

foreshadowed by aggressive behavior in childhood and early adolescence (Broidy et al., 2003; Nagin & Tremblay, 1999). Aggression in early childhood tends to decrease over time (Tremblay, 2000), but among a subgroup of youth, aggression amplifies to more serious forms of violence by early adulthood. Aggression at this age is highly salient because, unlike aggressive behavior in younger children, aggressive acts in early adulthood are more likely to cause serious injury or death in light of youths' increased physical strength and more widespread use of weapons (Loeber & Hay, 1997).

The amplification of antisocial behavior and aggression into more serious forms of violence is thought to be a cascade of developmental experiences that begins with the family and continues with experiences in peer groups (Patterson, 1982). Dodge and colleagues (2008) tested a cascade model of developmental influences and found that early adverse experiences in the family were linked to later school failure, reduction in family influence, and progression into violence in later adolescence. Although this longitudinal sequence of events is significant, it is also important to identify the specific interpersonal dynamics that explain individual differences in aggression and violence over time. According to coercion theory, social processes within the family are a causal mechanism in the emergence and escalation of violent behavior (Patterson, 1982). Early harsh parenting (e.g., yelling, spanking) in response to child misbehavior serves as a social model by which children initially learn to respond to interpersonal disagreements in an aggressive, confrontational manner. This behavior is negatively reinforced when parents reduce or abandon their efforts to manage child behavior in the face of highly aversive, negative exchanges. Because these coercive behaviors are found by youths to be functional (in that they achieve the goal of limiting parental oversight), they are often generalized into new settings and social situations (Patterson, 1996). For example, research has linked coercive processes in the home with coercive child behavior with peers on the playground (Dishion, Duncan, Eddy, Fagot, & Fetrow, 1994).

The developmental shift from family to peer influence in adolescence can initiate a cascade of failure experiences that heighten aggressive tendencies. Antisocial children tend to be rejected by prosocial children and thus affiliate more often with one another (Dishion, Patterson, Stoolmiller, & Skinner, 1991). These children may also play an active role by specifically selecting friends who are most responsive to coercive behavior (Snyder, West, Stockemer, Gibbons, & Almquist-Parks, 1996). Because the interactional style between coercive children and their friends is negative and contentious, these friendships provide more opportunities for coercive behavior to be rewarded through negative reinforcement (Dishion, Andrews, & Crosby, 1995), which can lead to increased aggressive behavior later in childhood (Kupersmidt, Burchinal, & Patterson, 1995).

Until recently, however, negative reinforcement in the peer group was not thought to be a mechanism that accounted for the amplification of aggression to violence in adolescence. Early research focused on the tendency for peers to provide rich schedules of *positive* reinforcement for deviant behavior (Buehler, Patterson, & Furniss, 1966; Short & Strodbeck, 1965). Using the matching law from reinforcement theory (McDowell, 1988), a process called *deviancy training* was identified in which antisocial youth selectively attend to friends' comments about deviant activities (Dishion, Patterson, & Griesler, 1994). In initial research, a general correspondence between the relative rate of reinforcement and deviancy training was found (Dishion, Spracklen, Andrews, & Patterson, 1996). Subsequently, deviancy training was found to predict escalations in various forms of problem behavior, including delinquency (Dishion, Nelson, Winter, & Bullock, 2004) and violence (Dishion, Eddy, Haas, Li, & Spracklen, 1997), and deviancy training mediated the link between deviant peer involvement and multiple forms of problem behavior in young adulthood (Patterson, Dishion, & Yoerger, 2000).

More recent research has revealed that deviancy training only partially mediated the link between early adolescent gang involvement and later violence (Dishion, Véronneau, & Myers, 2010), suggesting that the relationship dynamic underlying the amplification of antisocial behavior to violence was not fully described by deviancy training. In addition, Snyder and colleagues (2008) distinguished between "peer coercion" and "peer deviancy training" among elementary school children and found that coercion predicted growth in overt antisocial behavior, whereas deviancy training predicted growth in covert forms of problem behavior (Snyder et al., 2008). These findings suggested that the coercion mechanism among peers may continue to operate alongside deviancy training in adolescence.

To explore coercive processes in adolescent peer relationships, we developed a construct called *coercive joining* to capture a specific dynamic we observed in videotaped interactions of youth involved in gangs (Dishion & Van Ryzin, 2011). Coercive joining was thought to amplify the aggressive tendencies of adolescents through struggles for dominance in friendships; when coercive or aggressive behavior during such conflicts led to interpersonal control or influence, the behavior was thus reinforced through escape conditioning (negative reinforcement), which is the basic influence process of coercion theory (Patterson, 1982). It was hypothesized that coercive joining in friendships provided an interpersonal context for reinforcing violent behavioral norms (Dishion, in press).

One of the challenges in the analysis of social interaction is directly observing escape conditioning. Because actual negative reinforcement would be very difficult, if not impossible, to capture in the context of a brief observation, we relied on the notion that adolescents are likely to adopt verbal rules that govern their response to future social situations (Hayes & Hayes, 1992). We reasoned that coercive content in a social situation would represent generalizable behavioral norms that accurately reflect behavior outside of the observation session. Ultimately, the value of our coercive joining construct would be determined by (a) its relationship to earlier coercive family processes, and (b) its ability to predict outcomes consistent with coercion theory, such as escalation to violent behavior in early adulthood. In initial research, coercive joining predicted the escalation from aggression to violence by young adulthood even when we controlled for prior antisocial behavior and gang involvement (Dishion & Van Ryzin, 2011).

To follow up on this initial research, the goal of this study was to (a) test the hypothesis that coercive joining in friendships is a direct outcome of coercive interactions in families, and (b) examine the extent to which the former mediates the latter with respect to development of violence in early adulthood. Notably, we aimed to establish the importance of coercive joining independent of the effects of existing aggressive tendencies and positive reinforcement by peers; thus, we evaluated the ability of coercive joining to predict early-adulthood violent behavior, controlling for aggressive behavior and deviancy training.

As part of our analysis of mediation, we also examined whether coercive processes in the family in early adolescence could directly predict violent behavior in adulthood. Although links have been established between family coercion and later aggressive behavior in adolescence (Dodge et al., 2008) and between aggressive behavior in adolescence and violence in early adulthood (Dishion et al., 2010), no direct links have been established between coercive processes in the family and early-adulthood violent behavior, although such links are a logical extension of coercion theory. We evaluated the ability of family coercion at age 12 to predict violent behavior in early adulthood (i.e., ages 22–23) and then examined whether coercive joining at age 16–17 mediated the link found between coercive processes in the family at age 12 and early-adulthood violence. The hypothesized model is presented in Figure 1.

Method

Participants

Participants included 165 adolescents and their families, recruited in sixth grade from three middle schools in an ethnically diverse metropolitan community in the northwestern United States. These participants were part of a larger study (N = 998) of a family-based prevention program for problem behavior (i.e., the Family Check-Up; Dishion & Stormshak, 2007). Each participating family provided informed consent, and approval for this project was obtained from the University of Oregon Institutional Review Board. Unlike the full sample, our analytic sample was observed in family interactions at age 12.

Our analytic sample included 73 males (44.2%) and 90 females (54.5%); two participants did not provide gender data. By youth self-report, the sample comprised 56 European Americans (33.9%), 67 African Americans (40.6%), 11 Latinos (6.7%), and 29 (17.6%) of other ethnicities; two participants did not provide data. Single mothers were present in 62 (37.6%) of the families, and single fathers were present in 5 (3.0%) of the families. Family income ranged from less than $5K/year to more than $90K/year (median = $25–$30K). In the full sample, youths were randomly assigned at the individual level to either control or intervention conditions in the spring of sixth grade; our analytic sample was distributed equally across intervention (n = 82 youths) and control (n = 81 youths) conditions, $\chi^2(1) = .05$, *ns*. Approximately 80% were retained across the study in the full sample.

Measures

Family coercion—At child age 12, families participated in a videotaped interaction task. They were instructed to perform a variety of tasks during a 20-minute period, including planning a family activity, resolving a disagreement they had had in the previous month, and planning a family celebration. The family's discussion was coded by trained research assistants who were blind to information about the participant groupings and experimental hypotheses. The coders used a defined system (Dishion, Peterson, Winter, Jabson, & Hogansen, 2007) to complete macroratings of family dynamics. Approximately 15% of the data were randomly sampled and dual coded to assess reliability, and overall interrater agreement was 85%. The coders rated coercive behavior according to verbal content (e.g., expressions of disapproval, shouting, threats of unpleasant consequences), physical behavior (e.g., hitting, slapping, kicking), and affect (e.g., anger, disgust) during the discussion. Because coercion theory specifies that aggressive, aversive responses to interpersonal disagreements are both learned (e.g., children observing parents) and negatively reinforced (e.g., parental withdrawal in response to coercive behavior by the child), we included exhibitions of coercive behavior by parents and by youths as representative of coercive family processes. Coders rated the family along four dimensions: child-to-mother, mother-to-child, child-to-father, and father-to-child. Crohbach's alphas for the four ratings were .92, .92, .93, and .87, respectively. All measures were moderately correlated (rs between .43 and .74, $p < .01$) and combined in a single latent construct.

Coercive joining and deviancy training—At age 16–17 years, participants took part in a videotaped interaction task with a same-sex, self-nominated friend who was between 14 and 21 years old and had no familial relationship to the participant. The parents of the friend were contacted to obtain informed consent if he/she was younger than 18. Each dyad participated in a 45-minute discussion covering eight topics, including planning an activity together, a currently nominated problem of the participant, a currently nominated problem of the friend, drug and alcohol use, goals for the next year, friends and peer groups, dating, and planning a party. The videotapes were coded by undergraduate trained research assistants who were blind to the participant groupings and experimental hypotheses. Coders used a

defined system (Piehler & Dishion, 2005) to code specific aspects of the interaction and also completed macroratings of peer interaction dynamics (Dishion, Peterson, Piehler, Winter, & Woodworth, 2006). Approximately 15% of the data were randomly sampled and dual coded to assess reliability and ensure that interrater agreement remained at 80% or more for individual conversation topic codes and 85% or more for macrocodings.

Coercive joining in these peer discussions was coded along three dimensions: dominant behavior (e.g., dismissive of friend, didn't attend to friend's statements, interrupted friend, gave commands to friend), hostile or abusive references toward others (e.g., romantic partner, mutually known peers), and obscene language and gestures. Crohbach's alphas for the ratings were .73, .81, and .71, respectively. All three measures were moderately correlated (rs between .28 and .55, $p < .01$) and combined in a single latent construct.

Regarding the measure of deviancy training, previous research has revealed that duration of a deviancy training episode provides a normally distributed index for the deviancy training process (Dishion, 2000; Granic & Dishion, 2003). Thus, deviancy training was measured using the average length of rule-breaking bouts, that is, the percentage of the total time a dyad engaged in conversation about deviant topics. Deviant topics included all verbal and nonverbal behavior that was not appropriate to the setting or that violated community or societal norms (e.g., being involved in illegal activities, using drugs, violence or vandalism).

Early-adulthood violence—This construct was assessed by means of five indicators. First, we used self-reports of carrying a weapon (e.g., knife, gun) at ages 22 and 23. Participant responses were dichotomized such that a score of 1 indicated that the participant reported carrying a weapon at either wave; otherwise the score was 0. Second, we used arrest records gathered from state circuit courts; a score of 1 indicated that the participant had been arrested for a violent crime (e.g., assault, murder) at least once; otherwise the score was 0. Third, we used self-reports of violent response to stress using the Life Events and Coping Inventory (LECI; Dise-Lewis, 1988). At ages 22 and 23, responses to seven items (e.g., hit something or someone, break things, vandalize) were averaged; the data demonstrated adequate reliability (.80 at age 22, .76 at age 23). Scores from age 22 and 23 were significantly correlated ($r = .46$, $p < .01$) and averaged, with higher scores indicating more violent responses to stress. Finally, we used mother and father reports of aggressive behavior as measured by the CBCL (Achenbach, 1991) at age 23. The CBCL is a widely used measure that captures parents' ratings of a youth's behavior in the past 6 months in terms of aggressive, disruptive, or delinquent behaviors. Parents rated youth on each behavioral item according to the following scale: 0 (*rarely/never*), 1 (*somewhat or sometimes true*), and 2 (*often or very true*). In this analysis, we used the subscale for aggressive behavior. The data demonstrated good reliability (.91 for mother report, .90 for father report).

Antisocial behavior—Youth reports of antisocial behavior at ages 12 and 16–17 were measured averaging across nine items. Items assessed youths' reports of the number of times in the past month they had done things such as lied to parents about where they were or who they were with, hit or threatened someone at school, and engaged in theft and vandalism. Responses ranged from 0 (*never*) to 6 (*more than 20 times*). Good internal reliability was found for this scale ($\alpha = .83$ at age 12, $\alpha = .73$ at age 16–17).

Analytic Plan

We used structural equation modeling with Mplus (Muthén & Muthén, 2006) to evaluate direct effects (i.e., family coercion predicting early-adulthood violence) and the full (mediated) model. We used maximum likelihood analysis, which can provide unbiased

estimates in the presence of missing data if the data are missing at random. Two of the variables in the latent construct for early-adulthood violent behavior were dichotomous and thus declared as categorical; as a result, Mplus did not provide absolute indices of fit (e.g., CFI, RMSEA), so none are reported. Because this sample was derived from a randomized controlled trial of an intervention, we use a chi-square deviance test to evaluate whether the results at each step were different for the intervention and control groups. We fit a model in which paths were estimated freely to a model in which paths were constrained to be equal across the intervention and control groups; if the freely estimated model demonstrated significantly better fit, we concluded that significant differences existed in one or more model paths. We conducted this test twice—once for our test of direct effects and once for the full model.

In general, requirements for mediation include a significant direct effect of the predictor on the presumed mediator, a significant effect of the mediator on the distal outcome, a significant indirect effect of the predictor on the outcome via the mediator, and a significant direct effect of the predictor on the outcome that is rendered nonsignificant when the mediator is entered into the model (Judd, Kenny, & McClelland, 2001; MacKinnon & Dwyer, 1993). Thus, we first evaluated the direct effect of family coercion on early-adulthood violence; subsequently, we fit the model shown in Figure 1 and examined the indirect effect of family coercion on early-adulthood violent behavior by means of coercive joining. To evaluate the significance of the indirect effect, we used an analytic technique that is based upon the actual distribution of the indirect effect (PRODCLIN; MacKinnon, Fritz, Williams, & Lockwood, 2007). This technique provides an unbiased assessment of statistical significance even in situations in which the indirect effect is not normally distributed. PRODCLIN provides a 95% confidence interval for the indirect effect; if this interval does not contain zero, the effect is considered to be statistically significant.

Results

Correlations and descriptive data are presented in Table 1. Some data were missing in our analytic sample, but an analysis of missingness demonstrated that those individuals without data in late adolescence and early adulthood were not significantly different in terms of initial levels of family coercion or self-reported antisocial behavior (*r*s < .13, *ns*). In addition, those families missing data from fathers at age 12 were not significantly different in terms of adolescent coercive joining, deviancy training, antisocial behavior, or early-adulthood violence (*r*s < .14, *ns*).

When evaluating the direct effect of family coercion at age 12 on early-adulthood violence, we found that the effect was significant ($\beta = .26$, $p < .05$) even when controlling for the effects of deviancy training ($\beta = .56$, $p < .001$) and antisocial behavior ($\beta = .41$, $p < .001$) at age 16–17. These results did not differ between the intervention and control groups, $\chi^2(8) = 3.44$, *ns*.

We next fit the full model; results are shown in Figure 2. Nonsignificant paths are represented in gray; variables within each age were allowed to correlate freely. We added antisocial behavior at age 12 to control for any preexisting group differences. We found that the direct effect of family coercion on early-adulthood violence was no longer significant; however, the effect of family coercion on coercive joining was significant, as was the effect of coercive joining on early-adulthood violence. The indirect effect of family coercion on early-adulthood violence by means of coercive joining was significant (*B* = .046, CI = .002|. 110, $\beta = .11$); thus, we concluded that coercive joining completely mediated the effects of family coercion on early-adulthood violence. Family coercion, in addition to predicting coercive joining, was a marginally significant predictor of self-reported antisocial behavior

at age 16–17 (β = .16, $p < .10$) but not of peer deviancy training (β = .11, *ns*). At age 12, family coercion was significantly correlated with antisocial behavior ($r = .24$, $p < .01$). At age 16–17, coercive joining was significantly correlated with deviancy training ($r = .45$, $p < .001$) and antisocial behavior ($r = .20$, $p < .05$). Finally, we found that the results did not differ between the intervention and control groups, $\chi^2(11) = 5.71$, *ns*. In a post-hoc analysis, we found that there were no direct effects of the intervention on coercive joining or early adult violence (β = .05 and −.06, respectively, *ns*).

Discussion

Our results extend coercion theory in several ways. First, they suggest that the coercive joining process is a unique relationship dynamic that is strongly associated with later violence. Specifically, we found that coercive joining at age 16–17 significantly predicted violent behavior at age 22–23 over and above an existing individual tendency toward antisocial behavior *and* positive reinforcement for more general deviant behavior in friendships.

Second, our results suggest that coercive processes in the family are a strong predictor of adolescent coercive joining and early-adulthood violence, and that coercive behavior in adolescent friendships is a central mechanism by which these coercive family processes are amplified and extended to early adulthood. Indeed, we found that coercive behavior in the family predicted coercive joining in adolescence over and above a baseline tendency toward antisocial behavior. Interestingly, we found that coercive family interactions were not significantly linked to deviancy training, suggesting that this relationship dynamic emerges somewhat independently of family interaction patterns; for example, the decrease in parental monitoring that often arises from coercive family interactions may be a better predictor of later peer deviancy training.

The fact that coercive joining predicted later violence over and above deviancy training should not be construed as an attempt to minimize the impact of positive peer reinforcement on later violent behavior; in the direct effects model, deviancy training was a highly significant predictor of later violence (β = .56, $p < .001$) even when controlling for concomitant rates of antisocial behavior, and it remained significant when coercive processes were added to the model (β = .34, $p < .01$). What our findings suggest, however, is that coercive joining is an important additional mechanism by which aggression and violence can be reinforced in the peer group.

We also emphasize that coercive joining and deviancy training should be seen as related yet distinct but constructs. Coercive joining captures highly aggressive interpersonal behavior that is taken to represent an interactional style organized around aggression and intimidation of others; negative reinforcement arises from a process by which a display of this highly aggressive style results in the attainment of a specific goal (e.g., access to a desired resource). In contrast, deviancy training captures the extent to which peers actively attend to statements about a wider range of deviant behavior, thus prolonging the length of the discussion; this increased attention from peers is the mechanism by which deviant behavior can be positively reinforced.

The salience of coercive joining in the escalation of violent behavior is particularly noteworthy given that peer relationships are elective to a large degree. As such, peer relationships that individuals find to be aversive or unpleasant can be discontinued. Thus, more prosocial or well-adjusted peers may respond to regular displays of coercive behavior by abandoning a relationship. As a result, it seems likely that coercive youth, absent a specific intervention, are unlikely to be exposed to the sort of relationships with prosocial

peers that could support the development of social skills and empathy necessary to form and maintain satisfying interpersonal relationships.

The intervention implications of this study are twofold. First, it is clear that coercive relationship dynamics with family and peers are both important targets for intervention. A previous study revealed that randomization to the Family Check-Up in middle school reduced family conflict over time, which in turn accounted for reductions in general antisocial behavior by age 19 (Van Ryzin & Dishion, 2012); however, there were no intervention effects in this study, suggesting that the FCU may be more effective in addressing family rather than peer contexts. It would be useful, therefore, to provide more intensive intervention for the subgroup of families whose youth are prone to coercive behavior with peers. Once coercive interactions in the family were addressed, a more intensive program could provide explicit support for the generalization of these new behavioral patterns from family to peers.

Second, work by Larson and Lochman (2010) indicated that interventions directly targeting youths' regulation of negative emotion and the teaching of prosocial peer interaction skills can have significant effects on early aggressive behavior, suggesting that the early cycle of aggression, peer rejection, and deviant peer clustering can be interrupted. These strategies are recommended before youth become involved in peer cultures that directly support violence, which can be highly resistance to change once established.

This study demonstrates several strengths, including a strong theoretical model and a longitudinal, multimethod data set that includes observations of behavior at multiple time points. However, some limitations in this study suggest caution when interpreting the results. For example, the latent construct representing early-adulthood violence contained one indicator (i.e., arrests for violent behavior) that loaded less than optimally on the overall latent variable. However, a post-hoc sensitivity analysis indicated that removing this indicator did not change the overall results. Second, our coercive joining construct did not specifically measure negative reinforcement, but rather assessed aggressive, contentious patterns of behavior directed at friends. This behavior can be seen as a “norm” for interpersonal interactions and is a pattern that can be much more readily observed than actual escape conditioning. As our results demonstrate, coercive joining was linked to theoretically consistent antecedents (i.e., family coercion) and outcomes (i.e., early-adulthood violence) and thus demonstrated a high degree of validity.

In conclusion, our findings suggest that coercive joining in friendships is a key process in the progression from coercive family behavior in early adolescence to violence in early adulthood. Although deviancy training also has an impact on the development of violence, coercive processes in peer relationships can be an indication of risk for later violence and a worthwhile target for intervention program development.

Acknowledgments

This project was supported by grants DA07031 and DA13773 from the National Institute on Drug Abuse to Thomas J. Dishion. Support for the first author was provided by grant T32 MH20012 from the National Institute of Mental Health to Elizabeth A. Stormshak. We acknowledge the contribution of the Project Alliance staff, Portland public schools, the participating youths and families, and Cheryl Mikkola for her editorial assistance.

References

Achenbach, TM. *Manual for Child Behavior Checklist*/4–18 *and* 1991 *Profile.*. University of Vermont, Department of Psychiatry; Burlington, VT: 1991.

Broidy L, Nagin DS, Tremblay RE, Bates J, Brame B, Dodge KA, et al. Developmental trajectories of childhood disruptive behaviors and adolescent delinquency: A six-site, cross-national study. Developmental Psychology. 2003; 39:222–245. [PubMed: 12661883]

Buehler RE, Patterson GR, Furniss JM. The reinforcement of behavior in institutional settings. Behavior Research and Therapy. 1966; 4:157–167.

Centers for Disease Control and Prevention. National Center for Injury Prevention and Control. [Accessed August 7, 2012] Web-based Injury Statistics Query and Reporting System (WISQARS). 2012. Available from http://www.cdc.gov/injury/wisqars/index.html.

Dise-Lewis JE. The Life Events and Coping Inventory: An assessment of stress in children. Psychosomatic Medicine. 1988; 50:484–499. [PubMed: 3186892]

Dishion, TJ. Juvenile forensic psychology and psychiatry: The movement toward data-based innovations. In: Grigorenko, E., editor. Handbook of juvenile forensic psychology and psychiatry. Springer; New York: in press

Dishion TJ. Cross-setting consistency in early adolescent psychopathology: Deviant friendships and problem behavior sequelae. Journal of Personality. 2000; 68:1109–1126. [PubMed: 11130734]

Dishion TJ, Andrews DW, Crosby L. Anti-social boys and their friends in early adolescence: Relationship characteristics, quality, and interactional process. Child Development. 1995; 66:139–151. [PubMed: 7497821]

Dishion TJ, Duncan TE, Eddy JM, Fagot BI, Fetrow R. The world of parents and peers: Coercive exchanges and children's social adaptation. Social Development. 1994; 3:255–268.

Dishion TJ, Eddy JM, Haas E, Li F, Spracklen K. Friendships and violent behavior during adolescence. Social Development. 1997; 6:207–233.

Dishion TJ, Nelson SN, Winter CE, Bullock BM. Adolescent friendship as a dynamic system: Entropy and deviance in the etiology and course of male antisocial behavior. Journal of Abnormal Child Psychology. 2004; 32:651–663. [PubMed: 15648531]

Dishion, TJ.; Patterson, GR.; Griesler, PC. Peer adaptation in the development of antisocial behavior: A confluence model. In: Huesmann, LR., editor. Aggressive behavior: Current perspectives. Plenum; New York: 1994. p. 6-95.

Dishion TJ, Patterson GR, Stoolmiller M, Skinner M. Family, school, and behavioral antecedents to early adolescent involvement with antisocial peers. Developmental Psychology. 1991; 27:172–180.

Dishion, TJ.; Peterson, J.; Piehler, TF.; Winter, CE.; Woodworth, DL. Unpublished coding manual. University of Oregon, Child and Family Center; 2006. Peer interaction task coder impressions.

Dishion, TJ.; Peterson, J.; Winter, CE.; Jabson, JM.; Hogansen, JM. Unpublished coding manual. University of Oregon, Child and Family Center; 2007. Family assessment task coder impressions.

Dishion TJ, Spracklen KM, Andrews DW, Patterson GR. Deviancy training in male adolescent friendships. Behavior Therapy. 1996; 27:373–390.

Dishion, TJ.; Stormshak, EA. Intervening in children's lives: An ecological, family-centered approach to mental health care. American Psychological Association; Washington, DC: 2007.

Dishion TJ, Van Ryzin MJ. Peer contagion dynamics in problem behavior and violence: Implications for intervention and policy. ISSBD Bulletin. 2011; 60:6–11.

Dishion TJ, Véronneau M-H, Myers MW. Cascading peer dynamics underlying the progression from problem behavior to violence in early to late adolescence. Development and Psychopathology. 2010; 22:603–619. [PubMed: 20576182]

Dodge KA, Greenberg MT, Malone PS, The Conduct Problems Prevention Research Group. Testing an idealized dynamic cascade model of the development of serious violence in adolescence. Child Development. 2008; 79:1907–1927. [PubMed: 19037957]

Granic I, Dishion TJ. Deviancy training in adolescent friendships: A step toward measuring a pathogenic attractor process. Social Development. 2003; 12:314–334.

Hayes SC, Hayes LJ. Verbal relations and the evolution of behavior analyses. American Psychologist. 1992; 47:1382–1395.

Judd CM, Kenny DA, McClelland GH. Estimating and testing mediation and moderation in within-subject designs. Psychological Methods. 2001; 6:115–134. [PubMed: 11411437]

Kupersmidt JB, Burchinal M, Patterson CJ. Developmental patterns of childhood peer relations as predictors of externalizing behavior problems. Development and Psychopathology. 1995; 7:825–843.

Larson, J.; Lochman, JE. Helping schoolchildren cope with anger: A cognitive–behavioral intervention. Guilford; New York: 2010.

Loeber R, Hay D. Key issues in the development of aggression and violence from childhood to early adulthood. Annual Review of Psychology. 1997; 48:371–410.

MacKinnon DP, Dwyer JH. Estimating mediated effects in prevention studies. Evaluation Review. 1993; 17:144–158.

MacKinnon DP, Fritz MS, Williams J, Lockwood CM. Distribution of the product confidence limits for the indirect effect: Program PRODCLIN. Behavior Research Methods. 2007; 39:384–389. [PubMed: 17958149]

McDowell JJ. Matching theory in natural human environments. The Behavior Analyst. 1988; 11:95–109. [PubMed: 22478003]

Mercy, JA.; Butchart, A.; Farrington, D.; Cerdá, M. Youth violence. In: Krug, EG.; Dahlberg, LL.; Mercy, JA.; Zwi, AB.; Lozano, R., editors. The world report on violence and health. World Health Organization; Geneva, Switzerland: 2002. p. 25-56.

Muthén, LK.; Muthén, BO. Mplus user's guide. 4th ed.. Muthén & Muthén; Los Angeles, CA: 2006.

Nagin D, Tremblay RE. Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. Child Development. 1999; 70:1181–1196. [PubMed: 10546339]

Patterson, GR. Coercive family process. Castalia; Eugene, OR: 1982.

Patterson, GR. Some characteristics of a developmental theory for early-onset delinquency. In: Lenzenweger, MF.; Haugaard, JJ., editors. Frontiers of developmental psychopathology. Oxford University Press; New York: 1996.

Patterson GR, Dishion TJ, Yoerger K. Adolescent growth in new forms of problem behavior: Macro- and micro-peer dynamics. Prevention Science. 2000; 1:3–13. [PubMed: 11507792]

Piehler, TF.; Dishion, TJ. Unpublished coding manual. University of Oregon, Child and Family Center; 2005. The Norm Topic Code (NTC): A system for coding topics and reactions in friendship dyads (TOPIC).

Short, JF.; Strodbeck, FL. Group process and gang delinquency. University of Chicago Press; Chicago: 1965.

Snyder J, Schrepferman L, McEachern A, Barner S, Johnson K, Provines J. Peer deviancy training and peer coercion: Dual processes associated with early-onset conduct problems. Child Development. 2008; 79:252–268. [PubMed: 18366422]

Snyder J, West L, Stockemer V, Gibbons S, Almquist-Parks L. A social learning model of peer choice in the natural environment. Journal of Applied Developmental Psychology. 1996; 17:215–237.

Tremblay RE. The development of aggressive behaviour during childhood: What have we learned in the past century? International Journal of Behavioral Development. 2000; 24:129–141.

Van Ryzin MJ, Dishion TJ. The impact of a family-centered intervention on the ecology of adolescent antisocial behavior: Modeling developmental sequelae and trajectories during adolescence. Development and Psychopathology. 2012; 24:1139–1155. [PubMed: 22781876]

Key Points

- Violent behavior in early adulthood is often foreshadowed by aggressive behavior in childhood and early adolescence.
- Coercion theory has implicated peer deviancy training as a key mechanism in the development of later violent behavior.
- Coercive joining in adolescent peer relationships is an additional mechanism by which coercive processes in the family amplify and extend to violent behavior in early adulthood.
- Coercive joining in peer relationships can be an indication of risk for later violence and a worthwhile target for intervention program development.

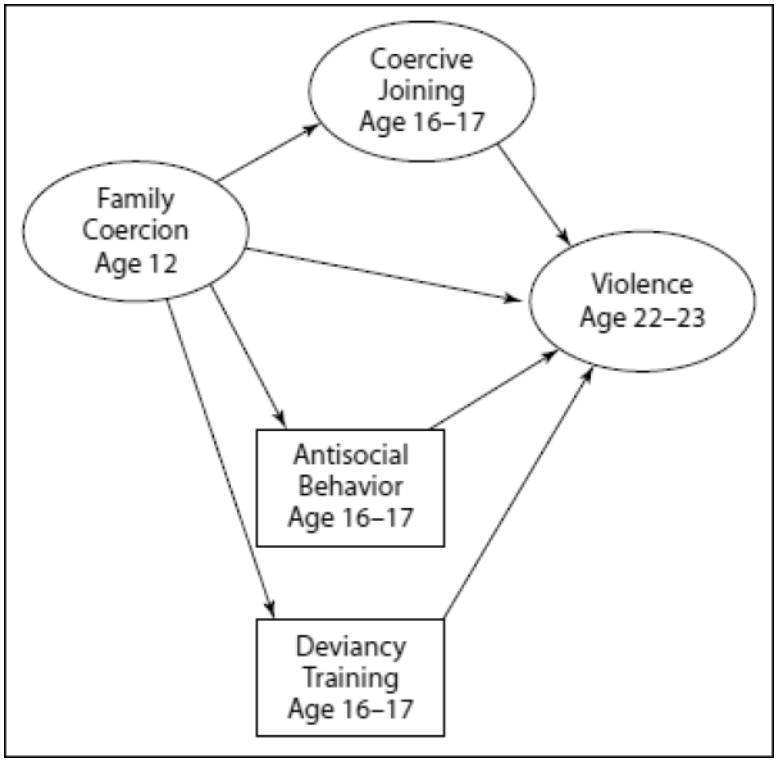

Figure 1.
Hypothesized model.

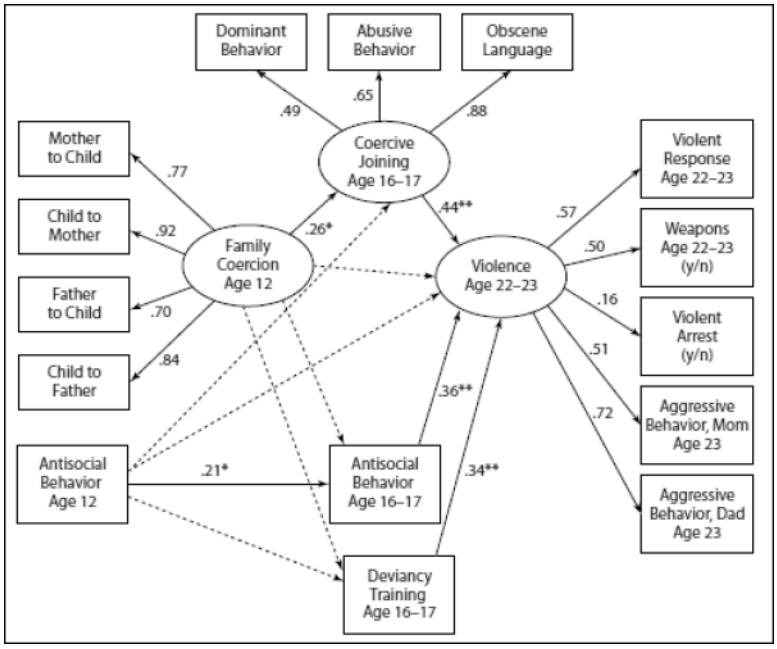

Figure 2.
Fitted model. Variables within each age allowed to correlate (not pictured).

Table 1

Correlations and Descriptive Data

	12 years					17 years					22–23 years				
	M-to-C	**C-to-M**	**F-to-C**	**C-to-F**	**Antisoc**	**Domi**	**Abuse**	**Obsc**	**Antisoc**	**Dev train**	**Vio resp**	**Weapon**	**Arrest**	**M aggr**	**F aggr**
M-to-C	–														
C-to-M	.71***	–													
F-to-C	.66***	.52***	–												
C-to-F	.43**	.74***	.69***	–											
Antisoc	.09	.23**	.05	.23	–										
Dom	.19†	.17†	.08	.37*	.07	–									
Abuse	.18†	.15	.08	.15	.23**	.28***	–								
Neg	.11	.13	.32*	.46**	.13	.42***	.55***	–							
Antisoc	.01	.20*	.02	.31†	.28**	.15†	.20*	.19*	–						
Dev talk	−.02	.04	.11	.28	.18*	.20*	.23**	.41***	.22*	–					
Vio resp	.13	.20*	.05	.33*	.02	.28**	.18*	.32***	.32***	.28**	–				
Weapon	.06	.10	.22	.16	.07	.06	.17†	.25**	.12	.37***	.31***	–			
Arrest	.13	.02	−.07	−.12	.26**	.02	.33***	.26**	.06	.00	.06	.02	–		
M aggr	.09	.35***	−.01	.25	.26**	.14	.10	.25*	.27**	.29**	.30***	.12	−.07	–	
F aggr	.18	.17	−.07	−.02	.53***	.38*	.49**	.49**	.60***	.47**	.32*	−.15	.28	.31†	–
N	122	122	44	44	162	131	131	131	136	127	155	155	123	115	36
M	2.22	2.29	2.64	2.53	1.47	3.04	1.52	2.10	1.38	12.42	1.69	.05	.24	55.49	53.58
SD	1.21	1.40	1.22	1.52	.58	1.46	.85	1.26	.46	17.71	.91	.22	.43	6.27	4.18

Note. M-to-C = mother to child, C-to-M = child to mother, F-to-C = father to child, C-to-F = child to father, Domi = dominant, Abuse = abusive, Obsc = obscene language, Dev train = deviancy training, Vio resp = violent response, M aggr = mother-report aggression, F aggr = father-report aggression.

† $p < .10$;

* $p < .05$;

** $p < .01$;

*** $p < .001$.