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Peer Influence in Children and Adolescents: Crossing the Bridge from Developmental to Intervention Science

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Abstract

Considerable evidence supports the hypothesis that peer relationships influence the growth of problem behavior in youth. Developmental research consistently documents the high levels of covariation between peer and youth deviance, even controlling for selection effects. Ironically, the most common public interventions for deviant youth involve segregation from mainstream peers and aggregation into settings with other deviant youth. Developmental research on peer influence suggests that desired positive effects of group interventions in education, mental health, juvenile justice, and community programming may be offset by deviant peer influences in these settings. Given the public health policy issues raised by these findings, there is a need to better understand the conditions under which these peer contagion effects are most pronounced with respect to intervention foci and context, the child's developmental level, and specific strategies for managing youth behavior in groups.

Keywords

peer relations; antisocial behavior; delinquency; intervention; iatrogenic effects; peer contagion; conduct problems

It is becoming clear that one of the major ways that deviant youth become even more deviant is through unrestricted interaction with deviant peers (Thornberry & Krohn, 1997). Ironically, many of the common treatments for deviant youth involve placing them in settings that aggregate them with other deviant youth. Concern has been raised about the possible iatrogenic effects of such placements (Dishion, McCord, & Poulin, 1999). The purpose of the current review is to consider the developmental evidence regarding peer influences, with respect to implications for intervention programs and public policy.

The review will unfold in steps. First, research examining the role of deviant peer influence in the development of delinquency will be examined, with an emphasis on evaluating the empirical evidence for this phenomenon as simply homophily (that is, the tendency for like-minded individuals to seek each other out) or a true effect of peer influence on development. Next, potential mechanisms underlying deviant peer influence will be posed. Third, the extent to which deviant peer influence poses a threat to the efficacy of interventions for youth will be considered, highlighting what is known about deviant peer influence in the four institutional

settings in which high-risk and delinquent children are served: education, mental health, juvenile justice, and community-based programs. Finally, gaps in the current research will be identified, gaps that the remaining articles in this special issue begin to address.

THEORETICAL, METHODOLOGICAL, AND CONTEXT CONSIDERATIONS

Much of the developmental research on peer influences on deviant behavior has focused on adolescent delinquency. Sociological studies have shown that deviant behavior is concentrated in certain adolescent groups. Gangs, cliques, and peer groups vary in their overall rates of deviance, but if one member of a group engages in problem behavior, a high probability exists that other members will do the same (Cairns, Cairns, Neckerman, Gest, & Gariépy, 1988; Dishion, Andrews, & Crosby, 1995). Longitudinal studies of delinquent behavior (e.g., Seattle Social Development Youth Study, Battin, Hill, Abbott, Catalano, & Hawkins, 1998; Denver Youth Study, Huizinga, 1995; Rochester Youth Development Study, Thornberry, 1998) have shown consistently that gang members, although they constitute only a small portion of these samples (range 14–30%), account for a disproportionately large share of the criminal behavior reported (range 68–90%). In fact, the finding that affiliation with deviant peers is associated with growth in delinquent behavior is one of the most robust findings in the literature on juvenile delinquency (Thornberry & Krohn, 1997). Exposure to deviant peers has been linked to increases in a wide range of delinquent behaviors including drug use (Dishion & Medici Skaggs, 2000; Thornberry & Krohn, 1997), covert antisocial behavior (Keenan, Loeber, Zhang, Stouthamer-Loeber, & Van Kammen, 1995), violent offenses (Elliott & Menard, 1996), and early and high-risk sexual behavior (Dishion, 2000). Deviant peer affiliation is a stronger predictor of delinquent behavior than variables such as family, school, and community characteristics (Elliott & Menard, 1996).

A primary point of contention among theorists concerns whether deviant peers make a unique contribution to the development of delinquent behavior (Burgess & Akers, 1966; Sutherland, 1936) or simply reflect a common underlying explanatory factor (i.e., homophily) among those with a predisposition to criminality (Glueck & Glueck, 1950; Hirschi, 1969). Recent, large-scale longitudinal studies of the development of delinquent behavior have allowed researchers to examine the temporal ordering of deviant peer involvement and delinquent behavior more closely. Rather than asserting the primacy of either deviant peer influence or dispositional characteristics in the development of delinquent behavior, such studies suggest that these factors influence each other reciprocally over the course of an adolescent's criminal career (Elliott, Huizinga, & Ageton, 1985; Elliott & Menard, 1996; Thornberry, 1987).

One important methodological limitation of many studies in this domain has been the use of a single source of information (i.e., the self) to report about both the peers' behavior and the self's behavior (Gottfredson & Hirschi, 1990; Kandel, 1996). Controlling for shared error variance due to information source has led to more modest estimates of the relation between self- and peer delinquency (Osgood & Haynie, 2003), but the relation remains robust. However, the magnitude of the relation between deviant peer association and delinquent behavior has been found to vary across groups and settings as a function of the age of onset of delinquent behavior (Coie & Miller-Johnson, 2001; Simons, Wu, Conger, & Lorenz, 1994); the stage of criminal behavior examined (e.g., initiation, active delinquency, desistance; Elliott & Menard, 1996); gender (Warr, 1996); and the nature of the deviant peer group studied (e.g., gangs, informal peer groups, dyadic friendships; Thornberry, 1998; Warr, 1996).

Deviant Peer Influences and Age of Onset of Delinquency

Patterson, Dishion, and Yoerger (2000) proposed that exposure to deviant peers may have particular salience to adolescents who do not initiate delinquent behavior until mid- to late-adolescence (often referred to as “late starters,” in contrast to early-starting aggressive youth

who begin delinquent careers by school onset). Similarly, Moffitt (1993) has argued that the late-starter group receives its primary instigation from exposure to early-starting youth. In fact, considerable evidence exists to support the hypothesis that deviant peer influences play an important role in both the initiation and exacerbation of late-onset delinquency (Elliott & Menard, 1996; Keenan et al., 1995). Furthermore, Simons et al. (1994) have noted that individual characteristics, such as an oppositional-defiant orientation and quality of parenting, are unrelated to either deviant peer influence or delinquent behavior among late starters. Similar findings have been reported by Keenan et al. (1995) using data from the Pittsburgh Youth Study.

For early starters, the evidence is more equivocal. Although some researchers have found that deviant peer associations predict subsequent delinquency in early starters even after controlling for early disruptive and aggressive behavior (e.g., Patterson, Capaldi, & Bank, 1991), other researchers have found that the relation between deviant peers and delinquency disappears once early disruptive behavior and family factors are considered (Tremblay, Masse, Vitaro, & Dobkin, 1995). Simons et al. (1994) found that both early family-dispositional characteristics and deviant peers exert effects on later delinquency for early starters, and that the influence of family and dispositional variables on delinquency is mediated largely by deviant peer influence: One mechanism for how family factors might lead to delinquent behavior is by affording children the opportunity to interact freely with deviant peers, who then act as the proximal instigator of delinquent behavior.

Deviant Peer Influences on the Developmental Stages of Delinquency

Closely related to the question of whether deviant peer influences operate differently for early- and late starters is the question of whether these influences operate differently at different phases of delinquency. Elliott and Menard's (1996) analysis of the National Youth Survey (NYS) data provides the most detailed account to date of the developmental transitions in delinquent behavior, association with deviant peers, and the relation between these two variables. Consistent with prior studies (e.g., Farrington, 1986), youth in the NYS sample followed a trajectory of delinquent behavior characterized by movement from minor to more serious delinquency. Specifically, both minor and index offending increased over the period of mid-adolescence, with peak prevalence of minor offenses at age 14 and index offenses at age 15. After age 17 or 18, the prevalence of both minor and major offenses began to decrease with only a minority of juvenile offenders continuing their criminal careers into adulthood. Developmental transitions in deviant peer group involvement follow a similar trajectory, increasing until age 15, remaining stable until age 18, then decreasing to rates comparable to pre-adolescence by the early 20s.

Integrating these two sets of data, Elliott and Menard (1996) identified a "typical" sequence in the developmental links between deviant peer associations and delinquency. Specifically, movement from purely non-delinquent peer groups ("saints") to peer groups with some minor deviant influence ("prosocial") usually preceded the transition from non-offending to minor offending. This transition was followed by movement from predominantly prosocial groups to groups mixed with respect to deviant and non-deviant peers. This transition typically preceded the transition from minor to index offending, which, in turn, preceded movement from a mixed peer group to one more uniform in its delinquent behavior.

It is important to note that the pattern described earlier reflects the *modal* developmental pattern, not the *only* one. In their analysis of data from the Montreal Longitudinal Experimental Study, Lacourse and colleagues (Lacourse, Nagin, Tremblay, Vitaro, & Claes, 2003), found three different developmental trajectories of affiliation with deviant groups: (a) childhood affiliation (individuals who initiated affiliation with deviant peers before or during pre-adolescence); (b) adolescent affiliation (individuals whose first affiliation with deviant peers

happened in adolescence); and (c) no affiliation (individuals who never, or only sporadically, affiliate with deviant peers). Understanding how and why some adolescents become involved with deviant peers may provide important insights into different types of adolescent offenders.

With respect to desistance, the NYS data support the maturational-reform hypothesis, which suggests that criminal behavior decreases as older adolescents move away from peer groups and into adult roles (e.g., legitimate employment) and monogamous romantic relationships (Sampson & Laub, 1993). However, it should be noted that in contrast to developmental patterns of onset and progression to more serious offending, older adolescents begin decreasing their delinquent behavior prior to their transition away from delinquent peer groups.

Deviant Peer Influences and Gender

Due in large part to their higher rates of delinquent behavior, boys have received considerably more empirical attention than girls. Emerging studies of females suggest that important gender differences in paths of influence may hold. Emler, Reicher, and Ross (1987) suggested that girls may be more susceptible to deviant peer influences than boys, but other research indicates that males are more heavily influenced by same-sex peers, whereas females are more likely to be influenced by their male friends (Simons et al., 1994; Warr, 1996). In their ethnographic study of street gang life in St. Louis, Decker and Van Winkle (1996) found that male gangs were relatively independent entities, whereas female gangs existed mainly as an adjunct to a male gang to which their male friends or boyfriends belonged. Clearly, drawing firm conclusions regarding the nature and degree of peer influence on girls' delinquent behavior is premature. The recent increase in theoretical and empirical attention to girls' delinquency (e.g., Putallaz & Bierman, 2004) likely will help resolve these important issues.

The Context of Deviant Peer Influence

Deviant peer influence in the context of gang involvement may differ in important ways from the influence of deviant peers in more informal peer structures. Findings from the Rochester Youth Study suggest that gang membership may provide a unique form of deviant peer influence. Comparing the criminal activity of gang members and non-gang members who are involved with delinquent peers, Battin et al. (1998) found that gang involvement made a unique contribution to criminal behavior, even after controlling for both prior delinquency and the number of delinquent friends. These findings suggest that gang membership influences delinquent behavior in a way that cannot be adequately explained by mere association with delinquent peers. Apparently, the culture of a gang exerts influence that goes well beyond the individual influences of each member. Understanding differences between processes that influence delinquency within gangs and those that operate in more informal peer networks is necessary in order to understand the mechanisms of peer group influence.

Another aspect of context that has been examined is the quality of the peer relationship in question. Although some researchers have suggested that peer influence is stronger in the context of close or intimate relationships, others have argued that strong attachment to peers is not necessary, or may in fact lessen the likelihood of deviance (i.e., Hirschi's Social Control Theory). Osgood and Haynie (2003) used data from the Adolescent Health Survey to examine peer influences on deviant behavior as a function of the quality of the peer relationship. They found that the level of attachment to peers and time spent with peers were unrelated to delinquency and did not moderate the impact of peers' deviance on individual deviant behavior. Similar findings have been reported by Elliott and Voss (1974), and Massey and Khron (1986).

Vitaro, Brendgen, and Tremblay (2000) assessed three sets of moderator variables in the relation between best friend's deviance and a male's delinquency in early adolescence: child

characteristics (disruptive behavior in childhood, attitudes toward delinquency), family characteristics (attachment to parents, parental monitoring), and social-setting characteristics (deviance in extended peer network). They found that boys' history of disruptive behavior, attachment to parents, and attitudes toward delinquency all served as moderators of the link between best friends' deviance and the boy's own delinquent behavior. That is, a history of disruptive behavior increased susceptibility to deviant peer influence, whereas parental attachment and unfavorable attitudes toward delinquency provided a buffer against the negative influence of a deviant best friend. Both parental monitoring and deviant behavior in other mutual friends had main effects on delinquent behavior but did not moderate the link between best friend's deviance and adolescent delinquency.

MECHANISMS IN DEVIANT PEER INFLUENCE

Theoretical accounts of the relation between association with deviant peers and growth in antisocial behavior have varied in the emphasis placed on the causal role of deviant peers. However, even among those theories that posit causal priority for deviant peer influences (e.g., Burgess & Akers, 1966; Elliott & Menard, 1996), relatively little attention has been paid to the mechanisms that underlie the relation between deviant peer association and delinquent behavior. Building on Sutherland's premise that people learn definitions or attitudes regarding law violations in the context of intimate primary groups (Sutherland, 1936; Sutherland & Cressey, 1978), Burgess and Akers (1966) identified processes through which this effect might occur, most notably reinforcement and imitation.

One promising line of research that addresses questions of peer group processes more explicitly is the work of Dishion and colleagues on delinquency training (Dishion, Spracklen, Andrews, & Patterson, 1996). They videotaped the conversations of 186 adolescent boys and their friends in a laboratory setting. The boys were participants in the Oregon Youth Study, a longitudinal study of the development of delinquent behavior. Boys were asked to identify friends with whom they spent considerable time and these peers were recruited to participate in the Peer Interaction Task. At the time of the initial peer assessment task, target boys were 13–14 years of age. During a 25-min videotaped session, boys were asked to discuss a range of topics, including planning a joint activity, solving a problem that had to do with getting along with peers, and solving a problem that involved getting along with parents. Verbal and nonverbal behaviors were coded into two topic codes (normative and rule-breaking) and two reaction codes (laugh and pause).

Results indicated clear differences in the patterns of topic selection and reinforcement among delinquent and non-delinquent dyads. Non-delinquent dyads reacted more positively to normative talk and were less likely to laugh in response to rule-breaking talk. Delinquent dyads displayed the opposite pattern. They were more likely to reinforce rule-breaking with laughter and less likely to reward normative topics. Among delinquent dyads, laughter led to increases in rule-breaking talk. Finally, delinquent dyads engaged in as much as four times the amount of talk about rule-breaking topics than did non-delinquent dyads. After identifying these different patterns of social discourse and reinforcement, Dishion and colleagues examined the relation between these processes and later delinquency. Of note, the rule-breaking-to-laugh pattern characteristic of delinquent peers (labeled "delinquency training") predicted increases in self-reported delinquent behavior over the subsequent 2-year period, even after controlling for prior levels of delinquency.

The utility of delinquency training as a mechanism for explaining the influence of deviant peers on deviant behavior has been supported in several follow-up studies. Deviancy training has been linked to increases in tobacco, marijuana, and alcohol use between the ages of 15 and 17 (Dishion, Capaldi, Spracklen, & Li, 1995), serious adolescent violence (Dishion, Eddy, Haas,

& Spracklen, 1997), and aggression toward female partners (Capaldi, Dishion, Stoolmiller, & Yoerger, 2001). Of importance in each of these studies, the delinquency-training process contributed to escalation of drug use and delinquency, after controlling for previous levels of these behaviors. It is notable that these predictions are made on the basis of merely 25 min of videotaped observations.

The work on deviancy training has recently been extended to account for peer influence as early as the first grade of elementary school. Snyder et al. (in press) conducted a quasi-naturalistic study of children interacting with classmates in a public elementary school setting. During recess times, each student in the study was videotaped interacting with two randomly selected peers in the classroom. The deviancy-training construct was translated to fit the interactions of young children. For example, “mocking” deviance was included in the construct. Like the work of Dishion and colleagues, positive reactions to deviant behavior and talk were coded. When examining the relation between peer influence and the development of antisocial behavior in the first grade, the authors made the important distinction between growth in *covert* and *overt* behavior patterns (Loeber & Schmaleng, 1985; Patterson, Reid, & Dishion, 1992). As would be expected by developmentally informed research by Tremblay (2000), overt antisocial behavior was not observed to increase at age 6, whereas covert behavior (e.g., lying, stealing) was. Using latent growth modeling, Snyder and colleagues (in press) found that relatively brief observations of deviancy training with randomly selected peers predicted growth in covert behavior in the first year of elementary school. These analyses suggest that peer influence in the form of deviancy training may, indeed, be relevant to the early onset of antisocial behavior.

The search for developmental mechanisms that account for peers’ influence on increases in problem behavior at all stages of development is only beginning, and to date, has focused on behavioral influence strategies. It is likely that other mechanisms involving social-cognitive factors are potentially important to explore. Additional possible mechanisms, which await empirical inquiry, have been proposed by Dodge and Pettit (2003), including self- and public-labeling effects of being identified as part of a group that is known to display deviance, exposure to new opportunities for deviance, adoption of attitudes and norms based on observational learning, increased provocations by peer-group members, and lack of exposure to the prosocial and tempering influences of normative peer groups.

THE PROBLEM OF TREATING DEVIANT YOUTH IN GROUPS

Although the bulk of research examining peer group influences on delinquent behavior has been conducted in naturally occurring peer groups (e.g., informal peer networks, dyadic friendships, street gangs), it has been hypothesized that similar processes operate in groups constituted for therapeutic reasons (Dishion et al., 1999). As noted, a common method of dealing with delinquent adolescents in this country is to place them together in settings such as special education classrooms, therapy groups, juvenile justice facilities, and community-based programs. Such practices make meeting the needs of deviant youth more financially and logistically feasible and serve the potential function of protecting non-delinquent youth from harm or negative influence. However, the processes of deviant peer influence might well operate in educational, treatment, correctional, and community-program settings in a manner similar to those in natural settings. One potential inadvertent consequence of bringing adolescents with problem behavior together is that such strategies may exacerbate rather than diminish problem behavior.

Educational Programs

Within educational settings, instructional and disciplinary policies often lead both directly and indirectly to the aggregation of deviant youth. Tracking on the basis of academic aptitude has

the indirect effect of bringing together children with problem behaviors due, in part, to the high co-morbidity of behavioral and educational difficulties (Morgan-D'Atrio, Northup, LaFleur, & Spera, 1996). Considerable evidence suggests that tracking on the basis of academic ability has an adverse impact on the academic achievement, motivation, self-esteem, and vocational outcomes of low-achieving students (Fuligni, Eccles, & Barber, 1995). More pertinent to this review, a small body of research suggests a link between tracking policies and growth in delinquency (Goodlad, 1983; Kelly & Pink, 1982; Oakes, 1985). Jenkins (1995) found that placement in lower academic tiers as a function of mathematics ability predicted decreased commitment to school, which, in turn, predicted higher rates of school crime and misconduct. Kerckhoff (1987) also found that placement in lower academic tracks was related modestly-to-moderately to a variety of negative academic and behavioral outcomes for high-school students.

In education settings, a common response to children who display conduct problems is to refer them to special education for diagnosis as “seriously emotionally disturbed” or “behaviorally or emotionally handicapped.” Children in the special education system are often treated in groups. Sometimes, these groups are self-contained classrooms and sometimes they are “pull-out” resource classrooms that last for only part of a day. The effects of this aggregation include both the possibility of deviant peer influence and the loss of opportunities for positive influence from well-adjusted peers. Education officials who understand these effects have lobbied for mainstreaming of special education children into regular classrooms as much as possible. The malignant effects of conduct-problem children on the atmosphere of the regular classroom, however, often prohibit mainstreaming for these children.

Although careful empirical research is needed to assess the impact of aggregating behavior-disordered children in special education classrooms, initial evidence suggests that such policies have adverse effects on deviant behavior. Several studies have indicated that students who receive special education services are more likely to be recommended for suspension and expulsion than non-special education students (Morrison & D'Incau, 1997). This pattern holds despite federal legislation that prohibits suspension of special education students for offenses related to their disability (Kingery, 2000). Several studies have demonstrated that students with mild-to-moderate learning disabilities, behavioral problems, or both, who remain in mainstream educational placements (i.e., inclusion models) fare better on a range of educational, psychosocial, and behavioral outcomes than do matched peers who spend part or all of their day in special education settings (e.g., self-contained classrooms, resource rooms) (Baker, Wang, & Walberg, 1994; Kerckhoff, 1999; Peetsma, Vergeer, Roeleveld, & Karsten, 2001;). However, it should be noted that the benefits of inclusion have not been reported consistently (Daniel & King, 1997; Peetsma et al., 2001) and do not appear to extend to students with severe learning or behavioral difficulties (MacMillan, Gresham, & Forness, 1996).

The disciplinary use of suspension and expulsion provides another example of educational policies that lead to the aggregation of deviant youth. For an increasing variety of offenses, especially in response to recent federally mandated, zero-tolerance policies, students are being recommended for long-term suspension and expulsion in unprecedented numbers (Kingery, 2000; Morrison & D'Incau, 1997). According to Kingery (2000), this trend has continued to increase since the advent of zero-tolerance policies, leading educational researchers to question the premise that “hard-line” discipline serves to deter future offenses. In a recent review of exclusionary discipline practices, Skiba (2002) concluded that there is “little or no evidence that suspension and expulsion make any contribution to reducing disruption or violence in schools” (p. 81). Furthermore, these disciplinary practices appear to be administered with little consistency across settings (Morgan-D'Atrio et al., 1996; Skiba, Peterson, & Williams, 1997) and may be implemented disproportionately on the basis of race, gender, socioeconomic status, and disability (Skiba et al., 1997).

The recent increase in suspension and expulsion rates has two potentially detrimental effects. Suspended and expelled students who are not offered alternative placements likely wind up in the community, increasing the likelihood of unmonitored exposure to other delinquent peers. Additionally, suspended or expelled students lose the opportunity to be exposed to the influence of their conforming classmates. Although these hypotheses have not been tested directly, evidence suggests that suspended students fall behind academically, are at increased risk of engaging in criminal activity in the community, and are more likely to drop out (Kingery, 2000; Tobin & Sugai, 1999). Similarly, Arum and Beattie (1999) found that students who report being suspended in high school were 2.2 times more likely to be incarcerated as adults than students with no history of suspension. This relation held even after controlling for related risk factors such as family characteristics, socioeconomic status, prior delinquency, and years of education.

Recently, a rapid increase in the use of alternative educational programs has occurred, particularly for chronically disruptive and suspended students (Kingery, 2000). Although early alternative schools were designed to serve students who were not served optimally in the traditional academic environment, alternative programs are increasingly used for disciplinary purposes (Raywid, 1994). In her review of the efficacy of alternative educational programs, Raywid identified three types of alternative programs:

1. Type I: Schools utilizing innovative strategies in administration and instruction to meet the needs of diverse students. Students apply to get in.
2. Type II: Schools focusing on behavior modification and discipline. Students are typically referred to these programs as a “last chance” before expulsion.
3. Type III: Schools focused on rehabilitation or remediation of either academic or behavioral difficulties or both. Focus is on treatment rather than discipline.

Although some overlap exists across these categories, these distinctions capture the variability in existing programs and provide a framework for understanding the impact of alternative programs on delinquency. In general, Type I programs have yielded the most beneficial results, primarily on educational outcomes, but also on behavior problems (Herbst & Sontheimer, 1987; Raywid, 1994). Little to no evidence exists to suggest that Type II programs are effective, and more pertinent to this review, some evidence suggests that they may cause harm. An analysis of statewide use of in-school suspension (considered a Type II program) in Florida during the 1979–80 school year revealed that the roughly 58,000 assignments to in-school suspension had no impact on drop-out rates, referral rates, or rates of more serious disciplinary measures (Raywid, 1994). Officials in Oklahoma reviewed that state's use of alternative programs and concluded that although alternative educational programs appear to have some positive effects, programs with a disciplinary emphasis adversely affected student outcomes, including delinquency (Raywid, 1994). Because the primary focus of Type III programs is treatment or rehabilitation (versus education), these programs are reviewed in the following section.

Mental Health Programs

The idea that peer aggregation of high-risk adolescents may be harmful was originally introduced in a study by Feldman and colleagues (Feldman, 1992; Feldman, Caplinger, & Wodarski, 1983). In this study, youth were assigned randomly to one of three treatment groups: one composed exclusively of referred deviant youth, one involving non-referred youth only, and one involving a mix of referred-deviant and non-referred youth. Two other treatment variables (experienced versus inexperienced group leaders and traditional versus behavior management strategies) were counterbalanced across treatment groups. Although overall effects for treatment were not large, deviant children assigned to all-deviant groups had more

adverse outcomes than those assigned to mixed groups. This effect was moderated somewhat by the leader's experience. Boys in mixed groups with experienced leaders fared best, whereas youth in exclusively deviant groups with inexperienced leaders demonstrated the most significant behavioral problems.

Similar results have been reported by Gottfredson (1987), who found iatrogenic effects on smoking and aggressive behavior for high school students randomly assigned to peer- (versus family-) based interventions. Notably, these effects were not evident for elementary school children.

Following this work, findings of random assignment intervention trials began to confirm that peer aggregation can, under some conditions, be iatrogenic (Dishion et al., 1999). In a study assessing the relative efficacy of parent- and peer-based interventions, Dishion and Andrews (1995) randomly assigned 119 high-risk boys and girls to one of four treatment conditions: (a) parent focus only; (b) peer focus only; (c) combined parent and peer focus; and (d) control. Although short-term outcomes suggested that both parent- and peer-focused interventions had positive effects (e.g., reduction in negative family interactions and increased mastery of curriculum), long-term analyses revealed negative effects for peer-focused interventions at both the 1- and 3-year follow-up. Specifically, subjects in the peer-focus condition showed increases in tobacco use and teacher reports of delinquent behavior compared to controls, over the course of 3 years (Poulin, Dishion, & Burraston, 2001).

These findings were consistent with previous research by Palinkas, Atkins, Miller and Ferreira (1996) with high-risk female adolescents who were provided social-skill training in the effort to reduce the initiation of drug use. In general, the cognitive-behavioral social-skill training was ineffective in reducing or delaying drug use initiation. More alarming, however, was the finding that among girls with no prior substance use, the skill training condition was associated with *more* drug use at 3-month follow-up than the randomly assigned controls, and these trends were statistically reliable.

In her re-analysis of the data from the Cambridge–Somerville Youth Study, McCord (1992) also found evidence that she interpreted as an iatrogenic effect of a peer-based intervention. This innovative, highly expensive intervention initiated in the 1940s provided comprehensive services to high-risk youth and their families in the context of a rigorous experimental evaluation. Short-term follow-up failed to demonstrate treatment effects, but long-term follow-up (30 years later) revealed adverse outcomes for participants who had received the peer group-based summer camp component of this intervention, compared with a matched control group. Close examination of the intervention records revealed that boys who spent more than one summer at residential camp experienced dramatically worse outcomes than those who did not. McCord concluded that exposure to other (potentially) deviant peers might be responsible for the long-term iatrogenic effects of this treatment (Dishion et al., 1999). One caution on this interpretation is that youth self-selected into summer camp experiences; because their matched controls did not make a similar self-selection, the intervention group may be biased toward deviance in an unknown way.

Taken together, these studies provide sufficient evidence to become concerned about the possible iatrogenic effects of aggregating deviant youth in mental health treatment. These effects appear to be moderated somewhat by several factors, including age of the participant (i.e., younger children appear to be less susceptible to iatrogenic effects than older children), leader characteristics (i.e., more experience can mitigate the iatrogenic effect), and composition of the group (i.e., introducing non-deviant peers mitigates the iatrogenic effect).

Juvenile Justice

Although research examining the effects of prevention and intervention programs on juvenile offending has not examined the effects of aggregating delinquents systematically, considerable evidence suggests that the detention of juvenile offenders in programs characterized by high exposure to deviant peers and minimal adult interaction fails to reduce, and in some cases may exacerbate, rates of recidivism. In a meta-analytic review of more than 500 crime prevention programs, Sherman et al. (1998) attempted to identify effective, ineffective, and promising intervention programs across developmental periods. With respect to delinquent and high-risk youth, the only prevention programs with clear, positive results were those aimed at family interactions (e.g., parent training and family therapy). Programs administered in groups found no or potentially adverse effects. Ineffective programs included school-based activities, leisure-time enrichment programs, correctional boot camps using traditional military training, and wilderness camps. Peer counseling also failed to reduce substance abuse or delinquency and, in some cases, increased delinquency. A common element across those programs that were identified as ineffective is the aggregation of deviant youth.

In a similar meta-analytic review of interventions for serious juvenile offenders, Lipsey, Wilson, and Cothorn (2000) found different effects for incarcerated and non-incarcerated offenders. For incarcerated offenders, the most effective programs included interpersonal skill development programs (e.g., social-skills training, anger management) and teaching-family homes (e.g., community-based, family-style group homes). Ineffective programs included milieu therapy, drug abstinence programs, wilderness or challenge programs, and vocational programs. One important factor in determining program efficacy for incarcerated youth was treatment delivery through professional mental health service providers versus correctional officers. Mental health professionals achieved more positive effects than correctional officers, which may be interpreted as an effect of experienced leaders as a moderator of program effects. For non-incarcerated offenders, programs involving individual counseling, interpersonal skill building, and behavioral interventions had the most beneficial effects. Once again, programs with minimal opportunities for deviant peer interaction may be most likely to extinguish delinquent behavior.

Consistent with these findings, several relatively recent interventions that have shown promising levels of efficacy share the common element of attempting to reduce or eliminate exposure to deviant peers. Henggeler's Multi-Systemic Therapy (Henggeler, Cunningham, Pickrel, & Schoenwald, 1996) and Chamberlain's Therapeutic Foster Care (Chamberlain & Reid, 1998) both involve the intensive training of parents or foster parents to monitor and reduce the deviant peer involvement of their adolescents. Even though the efficacy of the deviant peer-reduction treatment component has not been isolated relative to the other components of these comprehensive treatments, the overall efficacy of both programs is consistent with the hypothesis that interventions that minimize exposure to deviant peers may provide a promising alternative to programs involving deviant peer aggregation.

Community-Based Programs

A current popular response to the problem of adolescent delinquency is the creation of structured community programs and recreational facilities designed to give deviant adolescents an alternative to "hanging out." Although a wide variety of programs that serve both deviant and non-deviant adolescents could be subsumed under this category (e.g., after-school programs, Boys' and Girls' Clubs, church groups, scouting programs, sports leagues), few empirical studies have been conducted that address deviant peer aggregation in these settings. The work of Mahoney, Stattin, and Magnusson (2001), examining the impact of a national effort to create recreational opportunities for youth in Sweden, provides one noteworthy exception. The youth recreation centers described in this series of studies provide loosely

structured activities (e.g., ping pong, pool, music, video games) and events for adolescents aged 13–19 years. Typically, adults are on site to provide supervision but do not direct or facilitate the youth activities. Mahoney et al. (2001) have demonstrated that high-risk adolescents participate in these programs at a high rate and that frequent participation in youth center activities is related to increased rates of delinquent behaviors. Although selection effects likely explain some portion of this, the findings remain significant, even after controlling for prior levels of delinquency, and other family and economic variables. The effects are found for both male and female adolescents. The unique nature of these recreation centers (e.g., low level of structure and adult supervision, high concentration of at-risk youth) make generalizing these findings to other types of community-based programs difficult. However, these studies do provide suggestive evidence that iatrogenic effects can occur in programs not specifically designed for intervention purposes.

DISCUSSION AND IMPLICATIONS

The large body of literature investigating the role of deviant peer influence on delinquent behavior in adolescents lends support to the hypothesis that keeping company with deviant peers significantly increases the likelihood of individual delinquency for at least some kinds of adolescents. Developmental research with young children also suggests that peers may influence the early growth of covert forms of antisocial behavior. Although methodological limitations leave open the question of how large an effect deviant peers have, the evidence is consistent with the hypothesis that deviant peers play a critical role in both the initiation and exacerbation of delinquent behavior. Of importance, these effects hold even after controlling for prior levels of delinquency, suggesting that selection effects are not an adequate explanation for this phenomenon. Delinquent and high-risk adolescents may be drawn to peers who engage in deviant or dangerous behavior. However, exposure to and interaction with deviant peers lead to increases in deviance and delinquency beyond what would be expected without such interaction.

The newest generation of research, exemplified by the articles in this special issue, has emphasized the moderators and mediators of the deviant peer influence effect. Factors such as age, gender, prior levels of delinquency, attachment to parents, and attitudes toward delinquency all seem to play a role in an individual's susceptibility to deviant peer influence, but the processes involved are not well understood. Other factors, such as time spent with peers and the level of attachment to those peers, seem to be related less clearly to peer influence, although some level of exposure and identification is likely necessary for such influences to operate. Understanding more about how and when these processes begin to operate represents the next step in this area.

One of the characteristics of this new generation of research is its integration with scholarship across other domains (e.g., social psychology, economics, epidemiology). In a recent commentary on current work in peer socialization, Hartup (1999) challenged the research community to “develop and employ variables that are closer to process than the ones used in current work and to supplement their measurements with experimental assessments and expanded longitudinal designs that tell us more completely what happens in the course of the social interaction” (p. 181) among children and adolescents.

If, indeed, there is still much to learn about how and why deviant peers contribute to the development of delinquency, it may seem premature to sound the alarm about the possible iatrogenic effects of peer aggregation in programs designed to prevent or treat delinquent behavior. However, empirical evidence based on random assignment studies suggests that such processes could, in fact, occur (Dishion & Andrews, 1995; Feldman, 1992). Careful, experimentally rigorous examinations of intervention programs may provide a particularly rich

context for better understanding how these processes operate, and perhaps more importantly, how to intervene in a way that impedes them.

Characteristics of current intervention research make examining iatrogenic effects difficult. There is a serious lack of rigorous, random assignment studies testing the effects of peer aggregation. In many studies, aggregation is confounded by one or more variables, including type of intervention (e.g., cognitive behavioral therapy, social-skills training) and structural features of the intervention (e.g., experience of leader, amount of free interaction allowed). Additionally, in fields where aggregation has been a focus of debate (e.g., mainstreaming in education), too often behavioral outcomes are not considered, despite the high co-morbidity of behavioral and learning difficulties. Finally, the bias in peer-reviewed research against studies showing null or harmful effects makes it difficult to gauge how often the processes of deviant peer influence are adversely affecting treatment outcome.

Finally, public policy solutions to the problem of deviant peer influence in group settings are not obvious. It may not be possible to require that deviant youth receive individual treatment. “Batch processing” is the most common policy because it is financially and logistically feasible. Furthermore, much of society intuitively believes that deviant youth pose a danger to non-deviant youth. Although this perception may or may not be inaccurate (additional research is necessary to resolve this question), the end result is the same: The motivation to segregate deviant youth from mainstream society is strong and financial constraints appear to make group treatment the setting of choice. Complicating matters, there is little in the way of consensus within or across the domains of education, mental health, and juvenile justice regarding what constitutes an effective alternative response to the problem of delinquent behavior.

Given that in our current intervention systems (education, mental health, juvenile justice, and community programming) aggregation is the predominant and perhaps necessary means for dealing with delinquent youth, research examining how to mitigate the potentially harmful effects of deviant peer influence becomes critical. Research on the mechanisms of peer influence and studies taking a critical look at the components of efficacious treatment are a critical first step in designing more effective, less-harmful treatments. Child variables (age, gender, history of deviant behavior, social status), program characteristics (group constellation, ratio of deviant peers to non-deviant peers, structure, leader experience), and setting characteristics are all likely to interact in important ways to influence outcome.

The challenge, then, to researchers, program developers, and policy makers alike is clear. Deviant peer influence is an important contributing factor to the development of delinquent behavior. By combining deviant children and adolescents into treatment groups or educational programs without attending to these processes and the factors that impinge upon them, we may be harming inadvertently the very children we are trying to help. Only by attending to and studying these processes can we increase both our understanding of the development of delinquent behavior and the likelihood of our success in deterring it.

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