
When Interventions Harm

Peer Groups and Problem Behavior

Thomas J. Dishion

Joan McCord
François Poulin

*Oregon Social Learning Center and University of
Oregon*

Temple University

*Oregon Social Learning Center and University of
Oregon*

This article explored developmental and intervention evidence relevant to iatrogenic effects in peer-group interventions. Longitudinal research revealed that "deviancy training" within adolescent friendships predicts increases in delinquency, substance use, violence, and adult maladjustment. Moreover, findings from 2 experimentally controlled intervention studies suggested that peer-group interventions increase adolescent problem behavior and negative life outcomes in adulthood, compared with control youth. The data from both experimental studies suggested that high-risk youth are particularly vulnerable to peer aggregations, compared with low-risk youth. We proposed that peer aggregation during early adolescence, under some circumstances, inadvertently reinforces problem behavior. Two developmental processes are discussed that might account for the powerful iatrogenic effects.

Adolescent problem behavior is a concern for educational, mental health, and juvenile corrections agencies across the nation, each of which provides a range of intervention strategies designed to reduce such behavior, or at least support alternative positive behaviors.

The intervention philosophy, ideology, and strategies vary widely, but science can contribute to the understanding of which intervention strategies help, which are benign, and which actually have negative effects on youth (i.e., iatrogenic effects). It would seem that a priority of science would be to study and understand those interventions with negative effects. An important contribution would be to cull iatrogenic interventions from the social policy armamentarium in the effort to improve the outcomes for children and families in communities (Biglan, 1992).

Hundreds of controlled intervention studies have focused on adolescent problem behavior; an estimated 29% show negative effects (Lipsey, 1992). This may be an underestimate, given the file drawer problem: Intervention researchers are probably unlikely to publish null effects and, least of all, negative effects (see Dawes, 1994; Glass & Smith, 1978). Some researchers, however, have reported negative effects on certain forms of adolescent problem behavior, secondary to running the intervention in peer groups. For example, group counseling and guided group

interaction produced a negative effect on delinquent and antisocial behavior (Berger, Crowley, Gold, Gray, & Arnold, 1975; Feldman, 1992; Gottfredson, 1987; O'Donnell, 1992).

In this article, we tested the hypothesis that high-risk young adolescents potentially escalate their problem behavior in the context of interventions delivered in peer groups. To examine this hypothesis, we first invoked studies on adolescent social development, indicating the processes that might account for problem behavior escalation. Second, we reviewed two controlled intervention studies involving peer aggregation that produced negative short- and long-term effects on high-risk young adolescents. Finally, we discussed the developmental and intervention studies and proposed conditions that might increase the likelihood of negative effects with respect to underlying developmental processes. We also proposed directions for future intervention research to both accurately detect and understand iatrogenic effects associated with peer aggregation.

Peer Influences

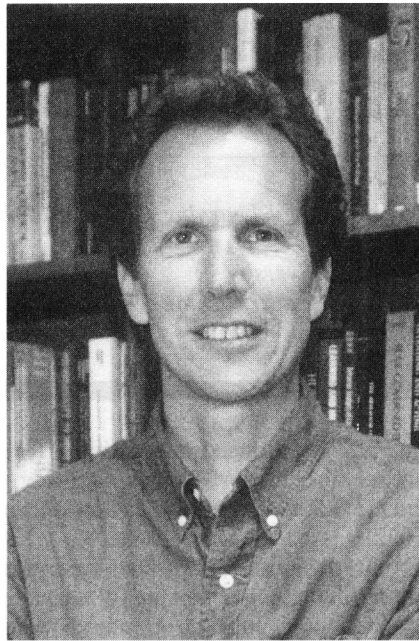
Longitudinal studies on the development of adolescent problem behavior provide compelling evidence that such behavior is embedded within the peer group (Elliott, Huizinga, & Ageton, 1985; Gold, 1970; Hawkins, Catalano, & Miller, 1992; Short & Strodtbeck, 1965). Patterson (1993) used latent growth modeling to show that association with deviant peers in early adolescence was uniquely associated with growth in problem behavior. If peers support growth in adolescent problem behavior, what is the influence process? For some time, this question has interested psychol-

Editor's note. Cheryl B. Travis served as action editor for this article.

Author's note. Thomas J. Dishion and François Poulin, Oregon Social Learning Center and Department of Psychology, University of Oregon; Joan McCord, Department of Criminal Justice, Temple University.

This project was supported by Grant DA 07031 from the National Institute on Drug Abuse at the National Institutes of Health and by Grants MH 37940 and MH 46690 from the National Institute of Mental Health.

Correspondence concerning this article should be addressed to Thomas J. Dishion, Oregon Social Learning Center, 160 East 4th Avenue, Eugene, OR 97401-2926. Electronic mail may be sent to tomdd@tigger.oslc.org.



Thomas J. Dishion

ogists (Hartup, 1983; Parker & Asher, 1987), psychiatrists (Sullivan, 1953), and sociologists (Short & Strodtbeck, 1965).

Contrary to historical assumptions about the beneficial effects of friendships on children's social development, adolescence is also a time when such relationships can undermine healthy development (see Hartup, 1996). We have spent the past five years studying the subtle but powerful influence of deviant friendships on escalations in problem behavior during adolescence. Much of this research was conducted using the Oregon Youth Study (OYS) boys (Capaldi & Patterson, 1987; Patterson, Reid, & Dishion, 1992).

The 206 OYS boys and their friends were videotaped in 25-minute problem-solving discussions at ages 13–14, 15–16, and 17–18. Topics were coded as either rule-breaking or normative; reactions were coded as either laugh (or another positive affect or gesture) or pause. Trained observers, using event-duration coding, codified the boys' topics and reactions from the videotapes.

We used two analytic frameworks (matching law and sequential analysis) for understanding the function of rule-breaking talk among boys and their friends. Using matching law (McDowell, 1988), the relative rate of reinforcement (i.e., positive affect) was found to be highly associated with the rate and duration of the boys' deviant discussions. Sequential analyses revealed that delinquent dyads react positively primarily to deviant talk, whereas nondelinquent dyads ignore deviant talk in favor of normative discussions (Dishion, Spracklen, Andrews, & Patterson, 1996).

We defined the term "deviancy training" as the process of contingent positive reactions to rule-breaking discussions. The next step determined how well deviancy

training predicted future problem behavior (controlling for prior levels). We recently completed three studies that focus on this question (findings are summarized in Figure 1).

Among boys who were abstinent at age 13–14, Dishion and colleagues found a statistically reliable, increased probability of tobacco, alcohol, and marijuana initiation by age 15–16, if the boys' friendships were characterized by deviancy training. Similarly, deviancy training accounted for increases in self-reported delinquency from ages 14 to 16 (Dishion, Capaldi, Spracklen, & Li, 1995). Finally, deviancy training throughout adolescence was associated with violence, controlling for the boys' histories of antisocial behavior and parental use of harsh, inconsistent, and coercive discipline (Dishion, Eddy, Haas, Li, & Spracklen, 1997).

These findings are striking when considering that the prediction of two-year increases in problem behavior could be made from 25 minutes of videotaped interaction. Possibly, the antisocial boys were especially reactive in showing off for the camera in an artificial situation. Regardless,

Figure 1
Three Studies on the Predictive Validity of Deviancy Training to Adolescent Problem Behavior





Joan McCord

it seems that deviant talk is a tool high-risk youth use to formulate and establish friendship networks, especially during adolescence (Cairns & Cairns, 1994).

More recently, Patterson, Dishion, and Yoerger (1999) examined the impact of the deviancy-training process on young-adult adjustment, as defined by sexual promiscuity, substance abuse, relationship problems, and adult convictions. These analyses revealed that the deviancy-training process accounted for 35% of the variation in young-adult maladjustment five years later. These developmental findings suggest that adolescent friendships based on deviance provide a context in which problem behavior escalates from adolescence through adulthood. The process seems to be functional where deviant talk and behavior elicits positive social reactions, compared with prosocial or normative behavior.

Data such as these suggest a variety of implications for interventions targeting high-risk youth. One interpretation might be that the powerful influence of peers could be harnessed in a positive direction, leading to reductions in problem behavior or, perhaps, increases in prosocial behavior. The second interpretation is that high-risk peers will support one another's deviant behavior, so group affiliations should be avoided during retraining periods. We now turn to experimental evidence that indicates the latter interpretation is the stronger possibility. The data reviewed thus far are, admittedly, merely correlational.

The Adolescent Transitions Program Study

The Adolescent Transitions Program (ATP) study was designed to test a theoretical model of adolescent problem behavior. Two developmental processes (parent and peer influences) were systematically targeted in the intervention

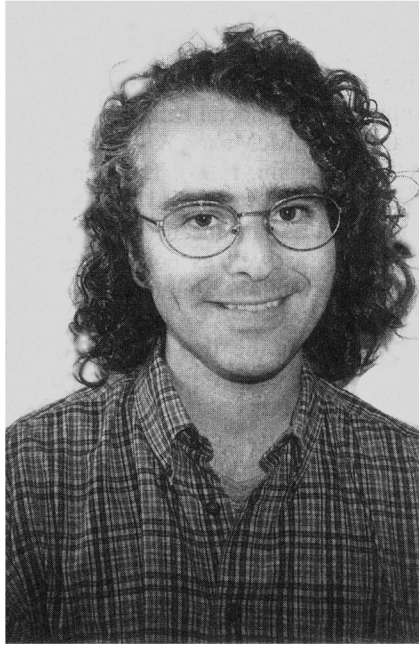
trial (Dishion, Reid, & Patterson, 1988). The parent focus component emphasizes parenting skills shown to be effective in reducing problem behavior and increasing peer support for prosocial behavior (Kazdin, 1987, 1988; Lochman, 1985; McMahon & Wells, 1989; Patterson, Dishion, & Chamberlain, 1993). The teen focus component emphasizes prosocial goals and self-regulation, using peer reinforcement as one means to promote completion of home exercises, as well as compliance with session activities. Both interventions, delivered in a group format, lasted for 12 weeks.

To examine the relative efficacy of the different intervention conditions, we randomly assigned 119 high-risk youth (boys and girls) and their families to one of four intervention conditions: (a) parent focus only; (b) teen focus only; (c) both parent and teen focus; and (d) an attention placebo group, referred to as self-directed change, which included free access to videotapes and written materials. We recruited a quasi-experimental control group ($n = 38$) to evaluate the extent to which the self-directed intervention reduced problem behavior. Outcome analyses combined the self-directed and control groups for comparisons with the relative effects of the teen and parent focus groups. Dishion and Andrews (1995) compared the characteristics of the participants, as well as the outcomes for the two groups, and found them virtually equivalent.

We hypothesized that the optimal intervention would be the combined condition, involving both the parent and teen focus curriculums (Dishion et al., 1988). Consistent with this hypothesis, many of the short-term effects were quite positive. For example, both teen and parent focus participants showed more curriculum-specific knowledge following the intervention (Dishion, Andrews, Kavanagh, & Soberman, 1996). More important, both interventions resulted in statistically reliable reductions in observed negative family interactions (Dishion & Andrews, 1995). Parent reports of family conflict suggested that the teen and parent focus cognitive-behavioral intervention considerably reduced family tension and conflict.

Unfortunately, more complete long-term analysis revealed that negative effects were associated with the teen focus curriculum. Three months after random assignment, we noted an increase in tobacco use among the teen focus participants. One year following the families' involvement in the ATP study, increases in tobacco use and teacher report of externalizing behavior were found to be reliably higher for the teen focus groups, compared with problem behavior within the control conditions (Dishion & Andrews, 1995). The effect sizes were strong enough to undermine the short-term positive gains of the parent focus intervention (Dishion & Andrews, 1995; Dishion, Andrews, et al., 1996). The combined parent and teen focus intervention programs did not reduce risk for substance use and delinquency, as hypothesized.

Three-year follow-up assessments suggest that the iatrogenic effects of the teen focus conditions persisted for tobacco use and delinquency (Poulin, Dishion, & Burraston, in press). As shown in Figure 2, random assignment to



François Poulin

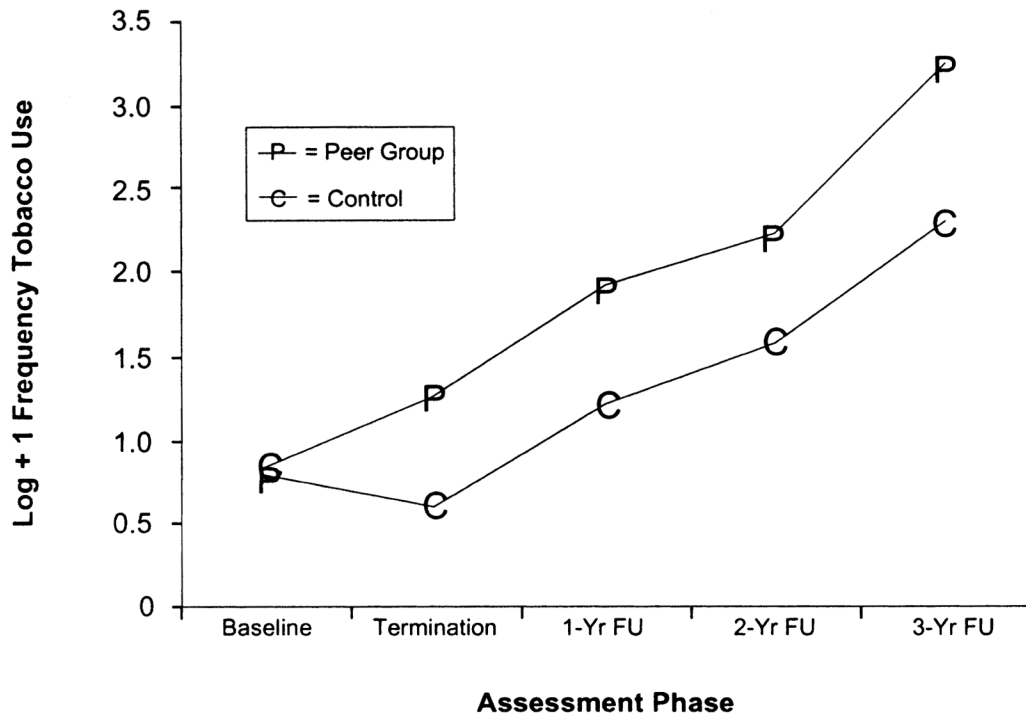
teen focus, regardless of the accompanying intervention with parents, was associated with long-term increases in tobacco use.

A reasonable argument might be that the long-term effects are attributable to changes in youth-reporting strategies, representing an Intervention \times Assessment interaction (Campbell & Stanley, 1963). Contrary to this hypothesis were the results of the analysis on the Delinquency scale of the teacher version of the Child Behavior Checklist (Achenbach, 1991). During the intervention study, teachers were unaware of each student's intervention condition. They knew even less of the ATP study in later years of follow-up. As shown in Figure 3, teachers reported higher levels of delinquent behavior in youth randomly assigned to teen focus, compared with controls; these levels persisted over the three-year follow-up period.

Additional analyses revealed that older (i.e., postpubertal) youth, with the highest initial level of problem behavior, were most susceptible to the iatrogenic effect (Poulin et al., in press). To better understand the processes that accounted for this effect, we are currently coding the videotaped intervention sessions, as well as examining the ratings provided by the participants and therapists following each of the 12 teen focus sessions.

Although the intervention groups were closely supervised to prevent direct encouragement of problem behavior, perusal of the videotapes suggests that the older children mobilized more group attention than their younger, less deviant counterparts. Attention in the group may have been elicited, not so much by the content of the discussions,

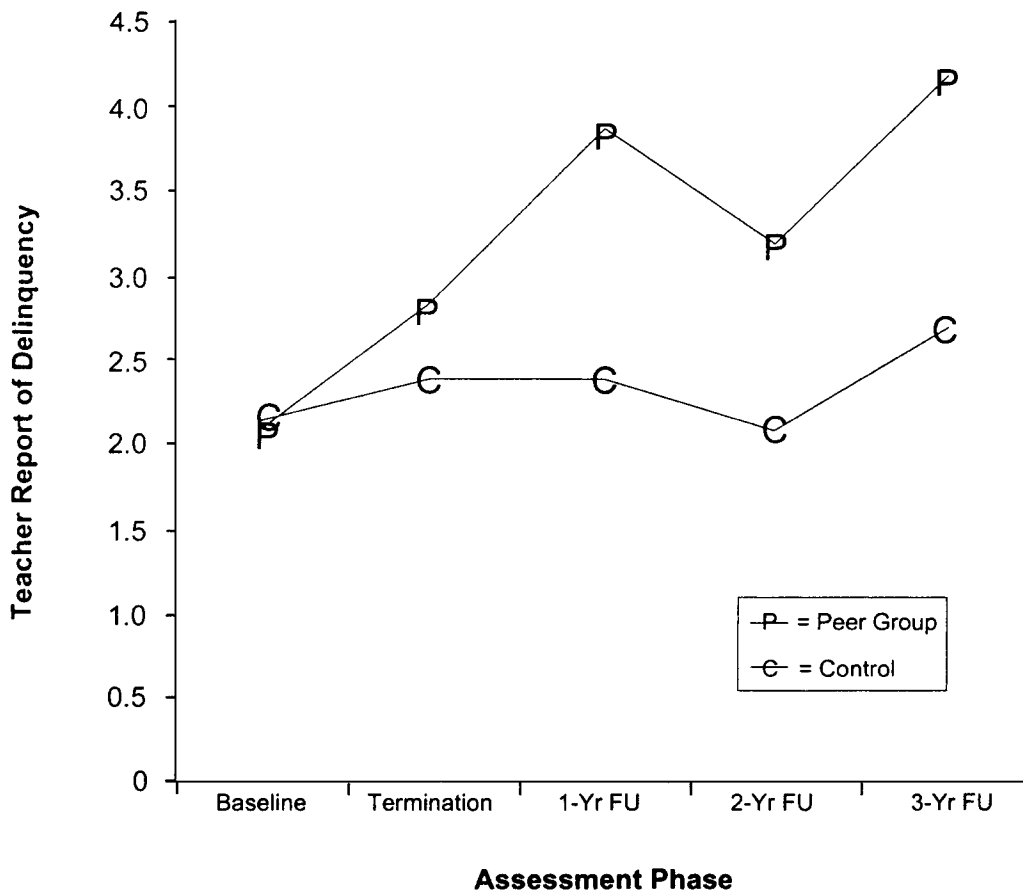
Figure 2
Frequency of Self-Reported Tobacco Use as a Function of the Teen Focus Intervention



Note. Yr = year; FU = follow-up.

Figure 3

Teacher Report of Delinquency as a Function of the Teen Focus Intervention



Note. Yr = year; FU = follow-up.

as by dress, behavior, and nonverbal expressions. These ideas will be explored in future analyses.

The Cambridge-Somerville Youth Study Evaluation

The Cambridge-Somerville Youth Study (CSYS) used a comprehensive approach to crime prevention, based on knowledge that high-risk children lacked affectionate guidance (Healy & Bronner, 1936; Powers & Witmer, 1951). The study broke new ground in several ways: (a) random assignment to treatment or control group; (b) the use of a matched-pair design, so that pairwise comparisons for effects of treatment differences, age, and family structure could be analyzed; (c) comparison of treatment and control groups three years after random assignments began and shortly after the beginning of treatment, in order to ascertain that characteristics known to be relevant to delinquency had not been unequally distributed by chance; (d) inclusion of both normal and difficult boys, although all

lived in congested, run-down neighborhoods, to avoid potential stigmatizing; (e) high participation; (f) treatment provided comprehensive help to boys and their families; (g) study began when the boys were too young to have been labeled delinquents; and (h) treatment lasting several years.

Particular attention was given to assuring that the intervention and control boys were equivalent on all known correlates of delinquent behavior. The matching variables included intelligence, age, source of referral, neighborhood crime ratings, home stability, quality of parental discipline, family histories of crime and alcoholism, the boys' aggression, and the boys' acceptance of authority.

After matching pairs of boys, random assignment determined the boy from each pair who would receive treatment. An analysis of the sample revealed the pairs of boys to be quite similar at the beginning of treatment. In particular, the treatment group was neither more nor less at risk for delinquency than the control group. Treatment was individualized—different boys and their families received

different mixtures of assistance, although most received academic tutoring, medical treatment (e.g., psychiatric help, eye glasses, and so forth), and general mentoring.

Treatment began when boys were, on average, 10.5 years old and terminated shortly after they reached the age of 16. Although the intensity of treatment varied, boys were visited an average of twice a month in their homes. Counselors encouraged their participation in local community groups and took the boys to sporting events, taught many of them how to drive, helped them obtain jobs, and served their families in a variety of ways (including help with finding employment, assisting in the care of younger children, counseling, and providing transportation).

An evaluation shortly after the program ended failed to turn up differences between the treated and untreated boys (Powers & Witmer, 1951). Many suggested that judgment be delayed until the boys fully matured. When the CSYS participants reached middle age, an intensive effort was made to find them and assess the effects of their treatment; that search resulted in 98% retention by 1979. Vital statistics, the courts, mental hospitals, and alcohol treatment centers provided objective evidence by which to evaluate effects of the program. Distressingly, as reported earlier, the treatment program apparently had harmful effects (McCord, 1978, 1981).

In order to better understand the processes by which treatment affected the boys, each man was given a single outcome rating. That rating was "undesirable" or "bad" if he (a) died prior to reaching age 35, (b) was convicted for a serious (Index) crime, or (c) was diagnosed as an alcoholic or labeled as psychiatrically impaired (e.g., schizophrenic, manic depressive). Otherwise, he was classified as "not having an undesirable outcome."

Using this dichotomy, each member of the treatment group was compared with his matched mate in the control group. If the treatment program had no effect, pairwise comparisons would show both or neither member had undesirable outcomes. Treatment effects would be shown among those pairs in which the outcomes were different for the treatment and control group representatives. Successful treatment would be shown through finding, in a minority of differentiated pairs, that only the men who had been in the treatment group had undesirable outcomes. Conversely, iatrogenic effects would be shown by finding, in a majority of differentiated pairs, that only the men who had been in the treatment group had undesirable outcomes. Among 150 pairs, results showed the treatment and control boys turned out similarly, with either both or neither having an undesirable outcome.

Overall, however, there was a statistically reliable iatrogenic effect. In 39 pairs, only the control boy had an undesirable outcome; for 64 pairs, only the treatment boy had an undesirable outcome. The likelihood that a difference of this size would occur by chance—39 favoring treatment, but 64 favoring no treatment—is .02 in a two-tailed test (McCord, 1981).

Two analyses indicated that the iatrogenic effects came from the treatment program. First, boys who received the most attention over the longest period of time were the

most likely to have iatrogenic effects. A dose-response analysis showed those in treatment longer, and those who received more intense treatment, were most likely to have turned out worse than their matched controls (McCord, 1990). Second, the iatrogenic results occurred only in the cooperative families. Among those, 27 pairs of treatment boys turned out better, but 52 pairs turned out worse. Among the pairs in which the treatment family was uncooperative, the control and treatment boys were equally likely to turn out badly (McCord, 1992).

Attempts failed to find subgroups for whom treatment had been beneficial. Those who started treatment at very early ages were not less likely to have bad outcomes than their matched controls. Nor was there evidence to show that some particular variation of treatment had been effective. Moreover, when comparisons were restricted to those with whom a counselor had particularly good rapport, or those whom the staff believed they had helped most, the objective evidence failed to show the program had been beneficial (see McCord, 1981, 1990, for details).

We explored the possibility that placing high-risk youth into group interventions could account for the iatrogenic effects. Many of the boys were encouraged to participate in YMCA and Boy Scout activities. Among almost half of the boys with counselors who focused on group activities ($n = 125$), there were no differences in outcome between the treated and the control case. For 20 pairs, only the control case turned out worse; for 35 pairs, only the treatment case turned out worse. The results of this focus were not worse, however, than a focus on academic problems, personal problems, or family problems. That is, the iatrogenic effects of the CSYS program do not appear to be attributable to an emphasis on encouraging boys to participate in group activities.

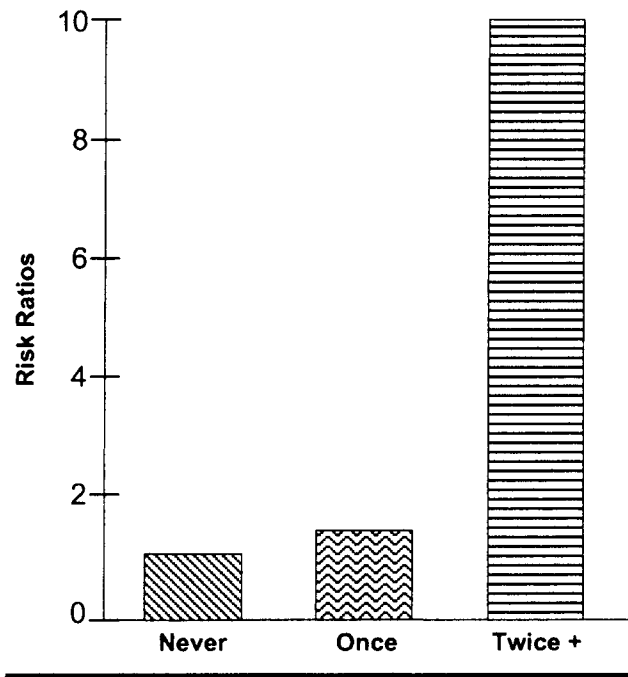
In addition to group activities, arrangements were made to send 125 of the boys to a variety of summer camps in the region. About half of this number went to camp for one summer ($n = 59$) and the remainder were sent for more than one summer ($n = 66$). Scattered throughout New England, these summer camps were not dominated by participation of high-risk youth. We reasoned that participation in such camps could permit the type of "audience" and selective attention for misbehavior studied in the OYS videotapes, and perhaps the teen focus groups, and that the audience, attention, or stated effects would be particularly pronounced among those who went to summer camp more than once.

The comparison of outcomes among matched pairs of boys shows that although none of the groups benefited from treatment, most of the damaging effects of the CSYS program appeared among the boys who had been sent to summer camp more than once (see Figure 4) and who turned out considerably worse than their matched mates. Among these pairs, the risk ratio for bad outcome was 10:1. In 20 pairs, only the treatment boys had bad outcomes, whereas the control boys had bad outcomes only in two pairs.

To check whether the outcome from summer camp might be related to a selection of particularly difficult

Figure 4

Bad Outcomes Associated With Attending Summer Camp



cases, summer camp placement was an early prediction of delinquency. Among those not sent to summer camp, 33% had ratings strongly predicting delinquency. Among those sent to summer camp once and those sent at least twice, 41% had similar ratings. The difference is not statistically reliable.

Of those sent to summer camp at least twice, 11 of the 20 pairs (55%) in which only the treatment boy had a bad outcome, and none of the pairs in which only the control case had a bad outcome, were strongly predicted to become delinquent. Among those sent to summer camp at least twice, only the treatment boy had a bad outcome in nine pairs without a strong negative prediction, and only the control boy had a bad outcome in two pairs. Thus, a negative effect of summer camp appeared to be general across the treatment group, though the effect was slightly stronger among those at highest risk for becoming delinquent.

We emphasize that the comparisons are based on random assignment within pairs matched prior to the treatment. Because each boy in treatment had been matched to a particular boy in the control group, equal outcomes for the pairs in the absence of treatment might be expected. Indeed, a majority of the pairs, regardless of whether the treatment boy attended summer camp, turned out equally in the measure of outcome 40 years after the program began. So, although the effect of multiple summer-camp placement appears to have been harmful, it should be noted that not all boys showed negative outcomes.

Discussion

A series of studies were reviewed addressing the hypothesis that peers can contribute to escalating trends in problem behavior among young adolescents. Developmental research suggests peer deviancy training is associated with subsequent increases in substance use, delinquency, and violence, as well as adjustment difficulties in adulthood. Two randomized intervention trials experimentally corroborated this basic idea.

ATP studies showed statistically reliable three-year negative effects on the youth report of smoking and teacher report of delinquent behavior. The CSYS study showed that pervasive, 30-year negative effects were associated with repeated experiences in summer camps in the early adolescent years. In short, aggregating peers, under some circumstances, can produce short- and long-term iatrogenic effects on problem behavior.

There are two advantages to jointly considering the developmental and intervention evidence. First and foremost, using experimental, controlled intervention research to test developmental hypotheses is a powerful tool for building models that guide future clinical work and intervention science (Cicchetti & Toth, 1992; Cook & Campbell, 1979; Dishion & Patterson, in press; Forgatch, 1991). In this sense, experimental research is critical for inferring causality. For example, one possible developmental counterargument against the causal status of the deviant peer influences is that genetically vulnerable children seek peer environments consonant with their genotype (Scarr & McCartney, 1983).

From this perspective, deviant peer influences and deviancy training could be seen as an epiphenomena of genotypic expressions that emerge within the adolescent developmental phase. The intervention research reviewed in this article, however, indicates that random assignment to such peer environments actually contributes to increases in problem behavior. Thus, combining developmental and intervention research builds a case for a causal connection between peer environments and escalation in problem behavior in early adolescence.

The second advantage is that developmental research can be used to understand the outcomes of intervention research or to provide direction as to the design of alternative intervention strategies. For instance, one might expect the younger, less deviant children to be negatively influenced by the older, more deviant group members. However, the data from both intervention studies suggest that the older, more deviant children were the most vulnerable to iatrogenic effects from peer aggregation. This fact is consistent with recent developmental research on the influence of friends.

In early adolescence, youth with moderate levels of delinquency, and who had deviant friends, were those who escalated to more serious forms of antisocial behavior (Coe, Miller-Johnson, Terry, Maumary-Gremaud, & Lochman, 1996; Vitaro, Tremblay, Kerr, Pagani, & Bukowski, 1997). Poulin, Dishion, and Haas (1999) found that boys with the poorest relationships and highest delin-

quency were most vulnerable to deviancy training, with respect to increasing delinquent behavior.

We offer two possible processes that might explain the converging evidence from intervention and developmental research on the influence of peers on social development: (a) youth being actively reinforced through laughter, social attention, and interest for deviant behavior are likely to increase such behavior (Dishion et al., 1995; Dishion et al., 1997; Dishion, Spracklen, et al., 1996); and (b) high-risk adolescents derive meaning and values from the deviancy training process that provides the cognitive basis for motivation to commit delinquent acts in the future (i.e., construct theory; McCord, 1997, 1999).

Both processes suggest that repetition of contact within the peer-group intervention would create the iatrogenic effect observed in these two intervention studies, especially among those youth likely to engage in deviant talk and behavior primarily in the company of peers. We hypothesize that the reinforcement processes within the peer groups are quite subtle and potentially powerful. For example, Buehler, Patterson, and Furniss (1966) found that within institutional settings, peers provided a rate of reinforcement of 9-to-1, compared with adult staff, suggesting that the density of reinforcement from peers can be so high it seriously undermines adult guidance.

In our analysis of therapist and client behavior predicting the magnitude of the iatrogenic effect, we found that observer impressions of therapist effectiveness were positively associated with growth in subsequent problem behavior (Dishion, Poulin, Hunt, and Van Male, 1998). Apparently, the more troublesome youth elicited more skillful behavior in the therapist, which did not appear to provide a corrective influence.

Based on the studies reviewed, there is reason to be cautious and to avoid aggregating young high-risk adolescents into intervention groups: Some conditions might further exacerbate the iatrogenic effect. The age of the child is certainly relevant, as younger and older children may be less affected by the processes described above. For example, a peer-training program, in which boys in third through fifth grades were trained to attend to behavioral cues of intentions, reduced the amount of aggression displayed by aggressive, unpopular boys (Hudley & Graham, 1993).

A two-year program, combining family interventions with peer training of boys identified as aggressive by their kindergarten teachers also resulted in reduced antisocial behavior and increased school success in subsequent years (McCord, Tremblay, Vitaro, & Desmarais-Gervais, 1994; Tremblay, Pagani-Kurtz, Masse, Vitaro, & Pihl, 1995). However, these peer-training groups were designed to include a mix of prosocial and aggressive youth, which may be the desired strategy. Feldman (1992) also found that mixing antisocial youth with prosocial youth in interventions was an effective strategy in reducing their problem behavior. Aggregation of high-risk youth, then, may be helpful in middle childhood or when groups also enforce interactions with prosocial children who do not respond with interest to talk of deviance.

Age of the child and format of the peer aggregation may impact the risk of producing negative effects on problem behavior. Research with older adolescents (e.g., high school) has shown mixed results. Eggert et al. (1994) found promising trends for reducing problematic drug use and deviant peer bonding and increasing school bonding. On the other hand, Catterall (1987) experimentally evaluated an intensive group counseling program for low-achieving high school students and found a general trend for negative outcomes, compared with control youth. Careful measurement of possible side effects provided some insight: Mutual bonding among the low-achieving high school students appeared to be prognostic of increases in school alienation.

Another factor to influence the risk of an iatrogenic effect is the kinds of youth included in the groups. Peer aggregation of depressed adolescents into cognitive-behavioral interventions, for example, produces positive effects and statistically reliable reductions in adolescent depression (Lewinsohn & Clark, 1990). Of note, however, is that in this research, youth with comorbid disruptive behavior disorders were not included in the study. Therefore, interventions aggregating youth in the treatment of depression, including those with antisocial behavior, may unwittingly produce increases in problem behavior. A broad view of the developmental and intervention literature would suggest that early adolescence is an especially vulnerable time for peer effects on social development, at least for children at high risk for delinquency.

In another study, we tested the hypothesis that clustering into deviant peer groups is an adaptation that has a positive function with respect to a young person becoming functionally autonomous from adult caregivers, as well as for achieving sexual maturity (Dishion, Poulin, & Medici Skaggs, in press). For this reason, many clinical researchers who focus on adolescence (e.g., Dishion & Kavanagh, in press; Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998; Patterson et al., 1993) have argued that interventions targeting high-risk youth need to have a family focus. Those interventions should also mobilize caregivers and other relevant adults to structure environments that do not aggregate youth into peer-group settings, which may inadvertently promote deviance.

Research by Chamberlain and colleagues revealed that mobilizing adult caregiving is a critical and viable intervention target for even the most severe adolescent delinquent (Chamberlain & Moore, 1998; Chamberlain & Reid, 1998). Her research compared a treatment foster care model with group home treatment, finding that the former resulted in reductions in deviant peer contact and subsequent self-reported and court-documented delinquency, compared with group home placement.

Moreover, interventions with high-risk parents have shown results in improved parenting, concomitant reductions in child and adolescent problem behavior (Dishion et al., 1995; Dishion, Spracklen, et al., 1996; Webster-Stratton, 1990), and improvement in academic skills (Forgatch & DeGarmo, in press). Therefore, the cost-effectiveness of group interventions is retained if focus is on the parents and aggregating young adolescents is avoided.

Clearly, more research is needed to understand the processes that account for the iatrogenic effects of interventions targeting high-risk youth—not all interventions using peer groups with difficult children have had iatrogenic effects.

To really understand the impact of interventions with adolescents, researchers will have to assess a variety of short- and long-term outcomes (Kelly, 1988) addressing expected intervention outcomes (e.g., targeted skills) with real-world outcomes (e.g., behavior in the natural environment). The scientific and professional community must be open to the possibility that intentions to help may inadvertently lead to unintentional harm.

REFERENCES

- Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist/4-18 and 1991 profile*. Burlington, VT: University of Vermont, Department of Psychiatry.
- Berger, R. J., Crowley, J. E., Gold, M., Gray, J., & Arnold, M. S. (1975). *Experiment in a juvenile court: A study of a program of volunteers working with juvenile probationers*. Ann Arbor: Michigan Institute for Social Research, The University of Michigan.
- Biglan, A. (1992). Family practices and the larger social context. *New Zealand Journal of Psychology, 21*, 37–43.
- Buehler, R. E., Patterson, G. R., & Furniss, J. M. (1966). The reinforcement of behavior in institutional settings. *Behavior Research and Therapy, 4*, 157–167.
- Cairns, R. B., & Cairns, B. D. (1994). *Lifelines and risks: Pathways of youth in our time*. New York: Cambridge University Press.
- Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research on teaching*. Chicago: Rand McNally.
- Capaldi, D. M., & Patterson, G. R. (1987). An approach to the problem of recruitment and retention rates for longitudinal research. *Behavioral Assessment, 9*, 169–177.
- Catterall, J. S. (1987). An intensive group counseling drop-out prevention intervention: Some cautions on isolating at-risk adolescents within high schools. *American Educational Research Journal, 24*, 521–540.
- Chamberlain, P., & Moore, K. J. (1998). Models of community treatment for serious offenders. In J. Crane (Ed.), *Social programs that really work* (pp. 258–276). Princeton, NJ: Russell Sage.
- Chamberlain, P., & Reid, J. B. (1998). Comparison of two community alternatives to incarceration for chronic juvenile offenders. *Journal of Consulting and Clinical Psychology, 6*, 624–633.
- Cicchetti, D., & Toth, S. L. (1992). The role of developmental theory in prevention and intervention. *Development and Psychopathology, 4*, 489–493.
- Coie, J. D., Miller-Johnson, S., Terry, R., Maumary-Gremaud, A., & Lochman, J. (1996, November). *The influence of deviant peers on types of adolescent delinquency*. Symposium conducted at the meeting of the American Society of Criminology, Chicago, IL.
- Cook, T. K., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis issues for field settings*. Chicago: Rand McNally.
- Dawes, R. M. (1994). *House of cards: Psychology and psychotherapy built on myth*. New York: Free Press.
- Dishion, T. J., & Andrews, D. W. (1995). Preventing escalation in problem behaviors with high-risk young adolescents: Immediate and 1-year outcomes. *Journal of Consulting and Clinical Psychology, 63*, 538–548.
- Dishion, T. J., Andrews, D. W., Kavanagh, K., & Soberman, L. H. (1996). Preventive interventions for high-risk youth: The Adolescent Transitions Program. In R. D. Peters & R. J. McMahon (Eds.), *Preventing childhood disorders, substance abuse, and delinquency* (pp. 184–214). Thousand Oaks, CA: Sage.
- Dishion, T. J., Capaldi, D. M., Spracklen, K. M., & Li, F. (1995). Peer ecology of male adolescent drug use. *Development and Psychopathology, 7*, 803–824.
- Dishion, T. J., Eddy, J. M., Haas, E., Li, F., & Spracklen, K. (1997). Friendships and violent behavior during adolescence. *Social Development, 6*, 207–223.
- Dishion, T. J., & Kavanagh, K. (in press). *Adolescent problem behavior: An intervention and assessment sourcebook for working with families in schools*. New York: Guilford Press.
- Dishion, T. J., & Patterson, G. R. (in press). Model building in developmental psychopathology: A pragmatic approach to understanding and intervention. *Journal of Clinical Child Psychology*.
- Dishion, T. J., Poulin, F., Hunt, M., & Van Male, B. (1998, March). *Peer process underlying iatrogenic effects within interventions that aggregate high-risk youth*. Paper presented at the Biennial Meeting of the Society for Research in Adolescence, San Diego, CA.
- Dishion, T. J., Poulin, F., & Medici Skaggs, N. (in press). The ecology of premature autonomy in adolescence: Biological and social influences. In K. A. Kerns, J. M. Contreras, & A. M. Neal-Barnett (Eds.), *Family and peers: Linking two social worlds*. Westport, CT: Praeger.
- Dishion, T. J., Reid, J. B., & Patterson, G. R. (1988). Empirical guidelines for the development of a treatment for early adolescent substance use. In R. E. Coombs (Ed.), *The family context of adolescent drug use* (pp. 189–224). New York: Haworth.
- Dishion, T. J., Spracklen, K. M., Andrews, D. W., & Patterson, G. R. (1996). Deviancy training in male adolescent friendships. *Behavior Therapy, 27*, 373–390.
- Eggert, L. L., Thompson, E. A., Herting, J. R., Nicholas, L. J., & Dicker, B. G. (1994). Preventing adolescent drug abuse and high school dropout through an intensive school-based social network development program. *American Journal of Health Promotion, 8*, 202–215.
- Elliott, D., Huizinga, D., & Ageton, S. (1985). *Explaining delinquency and drug use*. Beverly Hills, CA: Sage.
- Feldman, R. A. (1992). The St. Louis experiment: Effective treatment of antisocial youths in prosocial peer groups. In J. McCord & R. E. Tremblay (Eds.), *Preventing antisocial behavior: Interventions from birth through adolescence* (pp. 233–252). New York: Guilford Press.
- Forgatch, M. S. (1991). The clinical science vortex: Developing a theory for antisocial behavior. In D. J. Pepler & K. H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 291–315). Hillsdale, NJ: Erlbaum.
- Forgatch, M. S., & DeGarmo, D. S. (in press). Parenting through change: An effective parenting training program for single mothers. *Journal of Consulting and Clinical Psychology*.
- Glass, G. V., & Smith, M. L. (1978). "An exercise in mega-silliness": Reply. *American Psychologist, 33*, 517–519.
- Gold, M. (1970). *Delinquent behavior in an American city*. San Francisco: Brooks and Coleman.
- Gottfredson, G. D. (1987). Peer group interventions to reduce the risk of delinquent behavior: A selective review and a new evaluation. *Criminology, 25*, 671–714.
- Hartup, W. W. (1983). Peer relations. In P. H. Mussen (Series Ed.) & E. M. Hetherington (Vol. Ed.), *Handbook of child psychology: Volume 4. Socialization, personality and social development* (pp. 103–196). New York: Wiley.
- Hartup, W. W. (1996). The company they keep: Friendships and their developmental significance. *Child Development, 67*, 1–13.
- Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin, 112*, 64–105.
- Healy, W., & Bronner, A. F. (1936). *New light on delinquency and its treatment*. New Haven, CT: Yale University Press.
- Henggeler, S. W., Schoenwald, S. K., Borduin, C. M., Rowland, M. D., & Cunningham, P. B. (1998). *Multisystemic treatment of antisocial behavior in children and adolescents*. New York: Guilford Press.
- Hudley, C., & Graham, S. (1993). An attributional intervention to reduce peer-directed aggression among African-American boys. *Child Development, 64*, 124–138.
- Kazdin, A. E. (1987). Treatment of antisocial behavior in children: Current status and future directions. *Psychological Bulletin, 102*, 187–203.
- Kazdin, A. E. (1988). Social learning family therapy with aggressive children: A commentary. *Journal of Family Psychology, 1*, 286–291.
- Kelly, J. G. (1988). *A guide to conducting preventive research in the community*. New York: Haworth.

- Lewinsohn, P. M., & Clark, G. N. (1990). Cognitive-behavioral treatment for depressed adolescents. *Behavior Therapy, 19*, 385-401.
- Lipsey, M. W. (1992). Juvenile delinquency treatment: A meta-analytic inquiry into the variability of effects. In T. D. Cook, H. Cooper, D. S. Corday, H. Hartmann, L. V. Hedges, R. J. Light, T. A. Louis, & F. Musteller (Eds.), *Meta-analysis for explanation: A casebook* (pp. 83-125). New York: Russell Sage.
- Lochman, J. E. (1985). Effects of different treatment lengths in cognitive behavioral interventions with aggressive boys. *Child Psychiatry and Human Development, 16*, 45-66.
- McCord, J. (1978). A thirty-year follow-up of treatment effects. *American Psychologist, 33*, 284-289.
- McCord, J. (1981). Consideration of some effects of a counseling program. In S. E. Martin, L. B. Sechrest, & R. Redner (Eds.), *New directions in the rehabilitation of criminal offenders* (pp. 394-405). Washington, DC: The National Academy of Sciences.
- McCord, J. (1990). Crime in moral and social contexts. *Criminology, 28*, 1-26.
- McCord, J. (1992). The Cambridge-Somerville Study: A pioneering longitudinal-experimental study of delinquency prevention. In J. McCord & R. E. Tremblay (Eds.), *Preventing antisocial behavior: Interventions from birth through adolescence* (pp. 196-206). New York: Guilford Press.
- McCord, J. (1997). "He did it because he wanted to . . ." In D. W. Osgood (Ed.), *Nebraska Symposium on Motivation: Volume 44. Motivation and delinquency* (pp. 1-43). Lincoln: University of Nebraska Press.
- McCord, J. (1999). Understanding childhood and subsequent crime. *Aggressive Behavior, 25*, 241-253.
- McCord, J., Tremblay, R. E., Vitaro, F., & Desmarais-Gervais, L. (1994). Boys' disruptive behavior, school adjustment, and delinquency: The Montreal Prevention Experiment. *International Journal of Behavioral Development, 17*, 739-752.
- McDowell, J. J. (1988). Matching theory in natural human environments. *The Behavior Analyst, 11*, 95-109.
- McMahon, R. J., & Wells, K. C. (1989). Conduct disorders. In E. J. Mash & R. A. Barkley (Eds.), *Treatment of childhood disorders* (pp. 73-132). New York: Guilford Press.
- O'Donnell, C. R. (1992). The interplay of theory and practice in delinquency prevention: From behavior modification to activity settings. In J. McCord & R. E. Tremblay (Eds.), *Preventing antisocial behavior: Interventions from birth through adolescence* (pp. 209-232). New York: Guilford Press.
- Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children "at risk"? *Psychological Bulletin, 102*, 357-389.
- Patterson, G. R. (1993). Orderly change in a stable world: The antisocial trait as a chimera. *Journal of Consulting and Clinical Psychology, 61*, 911-919.
- Patterson, G. R., Dishion, T. J., & Chamberlain, P. (1993). Outcomes and methodological issues relating to treatment of antisocial children. In T. R. Giles (Ed.), *Effective psychotherapy: A handbook of comparative research* (pp. 43-88). New York: Plenum.
- Patterson, G. R., Dishion, T. J., & Yoerger, K. (1999). *Adolescent growth in new forms of problem behavior: Macro- and micro-peer dynamics*. Manuscript submitted for publication.
- Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *A social learning approach: IV. Antisocial boys*. Eugene, OR: Castalia.
- Poulin, F., Dishion, T. J., & Burraston, B. (in press). Longterm iatrogenic effects associated with aggregating high-risk adolescents in preventive interventions. *Applied Developmental Science*.
- Poulin, F., Dishion, T. J., & Haas, E. (1999). The peer influence paradox: Relationship quality and deviancy training within male adolescent friendships. *Merrill-Palmer Quarterly, 45*, 42-61.
- Powers, E., & Witmer, H. (1951). *An experiment in the prevention of delinquency: The Cambridge-Somerville Youth Study*. New York: Columbia University Press.
- Scarr, S., & McCartney, K. (1983). How people make their own environments: A theory of genotype to environment effects. *Child Development, 54*, 424-435.
- Short, J. F., & Strodbeck, F. L. (1965). *Group process and gang delinquency*. Chicago: University of Chicago Press.
- Sullivan, H. S. (1953). *The interpersonal theory of psychiatry*. New York: Norton.
- Tremblay, R. E., Pagani-Kurtz, L., Masse, L. C., Vitaro, F., & Pihl, R. O. (1995). A bimodal preventive intervention for disruptive kindergarten boys: Its impact through mid-adolescence. *Journal of Consulting and Clinical Psychology, 63*, 560-568.
- Vitaro, F., Tremblay, R. E., Kerr, M., Pagani, L., & Bukowski, W. M. (1997). Disruptiveness, friends' characteristics, and delinquency in early adolescence: A test of two competing models of development. *Child Development, 68*, 676-689.
- Webster-Stratton, C. (1990). Long-term follow-up of families with young conduct problem children: From preschool to grade school. *Journal of Clinical Child Psychology, 19*, 144-149.