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| **Discussion****This Bulletin provides a synthesis of years of research leading to the postulation and testing of a theoretical model for child and adolescent development of disruptive behaviors along orderly, progressively more serious pathways. Three pathways were found to be better than one in terms of clarifying the dynamic escalation of severity along the continuums of covert, overt, and authority conflict behaviors. Replications of the pathways in other data sets have been reported by Tolan and Gorman-Smith (in press). It is not yet clear to what extent the pathways apply to girls.** **The strength of this pathways model is in large part due to the researchers' sensitivity to the developmental realities of life for children and adolescents. Age-appropriate developmental tasks must be mastered before an individual child can successfully progress to the next level of challenges. Not all problem behaviors emerge at the same developmental stage. A key to the identification of stages within the pathways model is documenting the age of onset for specific disruptive behaviors. The pathways represent developmentally formulated stages that are sensitive to both age-appropriate manifestations of problem behavior and increases in severity, with each stage of the pathway serving as a stepping stone toward more serious behaviors. Each of the three hypothesized pathways can be thought of as representing different developmental tasks:** * **The overt pathway represents aggression, as opposed to positive social problem solving.**
* **The covert pathway represents lying, vandalism, and theft, as opposed to honesty and respect for property.**
* **The authority conflict pathway represents conflict with and avoidance of authority figures, as opposed to respect for authority figures.**

**This conceptualization implies that youth who master one developmental task, such as honesty, will not necessarily master another. Some youth may fail to accomplish several of the critical developmental tasks. Therefore, pathways in disruptive behavior can be viewed as different lines of development with some multiproblem boys progressing on several pathways at the same time.** **What are the implications of developmental pathways for the prevention of disruptive and delinquent behavior? First, age-appropriate strategies must be devised to assist children in mastering key developmental tasks. For instance, to avoid onset of the overt pathway, children must learn to control aggressive outbursts and use words, rather than fists, to resolve problems. However, tasks that appear to be directly linked to the overt, covert, and authority conflict pathways cannot be the sole focus. Child development cannot be neatly compartmentalized, so a holistic approach must be followed to meet the needs, identify the interests, and foster the strengths of the total person.** **Second, the warning signs of early onset of disruptive behaviors must not be dismissed with a "this too will pass" attitude. Interventions will be more successful if the child has not already persistently performed a negative behavior or penetrated the more serious stages of a pathway.** **How can children at risk for pathway onset and penetration be efficiently identified? Each child should be approached from a developmental perspective. Is the child exhibiting appropriate behavior for his developmental stage? Are there knowledgeable individuals in the child's life who could help in determining risk? Several of the instruments employed in this research can also be administered to parents and teachers to help identify those children exhibiting risk factors for problem behaviors. Factors to examine include how often a child is disruptive, with what intensity and provocation he exhibits disruptive behavior, and whether the behavior occurs in multiple settings. This research indicates that a child who only experiments with disruptive behavior is at far less risk for progressing along the pathway than a child who persists in practicing negative behaviors.** **When screening at-risk children for possible interventions, practitioners should consider utilization of a multiple-gating design (Loeber, Dishion, and Patterson, 1984). This cost-effective screening procedure is based on techniques commonly used in personnel selection. As shown in figure 14, the least expensive screening procedure is first applied to the full sample of at-risk children, such as having teachers complete a checklist of early problem behaviors at school in the first gate. Based on red flags from the teacher's screening, a more expensive screening involving telephone interviews could be conducted with mothers in the second gate to gather information on problem behavior at home. For the smaller group of children still considered at high risk after the second gate, even more intensive home observations could be conducted to gather information on parents' child-rearing practices in the third gate. With a multiple-gating design, the assessment of progressions in developmental pathways and disruptive behavior in multiple settings, frequency, and variety can all be incorporated in the screening process.** **Figure 14****Once a parent, teacher, or other caretaker is aware of a child's propensity for disruptive behavior, help should be sought as soon as possible. Research on the oldest sample (Stouthamer-Loeber et al., 1995) indicated that the development of disruptive and delinquent behaviors was largely left unchecked among a population of eighth grade boys. Problem behavior had been exhibited for an average of 6 years by boys who had committed delinquent acts. Only 41% of these boys' parents had ever sought help from anyone, including friends, family members, or professionals. By the eighth grade, only 20% of the delinquent boys had been in contact with the juvenile court. The researchers concluded that the majority of the delinquent boys experienced uninterrupted delinquent careers. Clearly, parents need to be informed about their children's potential progression into more serious behaviors and about any available community services.** **Teachers come into direct contact with most at-risk children. Teachers often observe problem behaviors in the classroom, the cafeteria, and on the playground and frequently are the first to refer children for assessments for ADHD, other conduct disorders, and specific learning disabilities. A child's failure to experience academic success can often accompany behavioral problems. A child's progression along developmental pathways can have negative consequences for his educational advancement and for the overall learning climate in the classroom. Teachers play a critical role in communicating problems to the child and his parents, instituting classroom interventions, and providing referrals to appropriate resource personnel or agencies. Schools may need to implement educational reforms that focus on students at risk for disruptive behavior (Montgomery and Rossi, 1994).** **Mental health and juvenile justice practitioners have much to contribute by working together to redirect disruptive children back on the track of positive development. Often, the same children are given a psychiatric diagnosis of mental health problems and are processed in the juvenile justice system.** **OJJDP recently initiated the Mental Health/Juvenile Justice Initiative. Under this initiative, OJJDP supports a number of projects to enhance collaboration between the mental health and juvenile justice systems:** * **The Institute of Law, Psychiatry, and Public Policy at the University of Virginia is utilizing the multidisciplinary perspectives of law, developmental psychology, and clinical assessment to examine adjudicative competence and maturity in juvenile offenders.**
* **OJJDP is working with the National Institute of Mental Health on a research study examining multimodal intervention for children with ADHD. This study will evaluate the long-term efficacy of stimulant medication and intensive behavioral/educational treatment, alone and in combination, for the treatment of children with ADHD. Followup measures with the 576 children enrolled in the study will assess other possible negative outcomes of ADHD, such as substance abuse, precriminal activities, delinquent behavior, and juvenile justice system contacts.**
* **The Center for Mental Health Services is supporting comprehensive system-integrated delivery of mental health services for children and youth in 32 communities across the country. OJJDP is providing resources for technical assistance to assist these communities in the improvement of services to youth in the juvenile justice system.**
* **OJJDP is supporting the development of technical assistance resources for implementation of programs that address coexisting behaviors, such as drug use and mental health problems, with youth in the juvenile justice system.**

**These efforts are designed to deal with children already exhibiting problem behavior or delinquency. OJJDP is also providing partial support for the Risk Reduction Via Promotion of Youth Development project. This is a large-scale intervention project designed to promote coping competence and to reduce risk for conduct problems, substance use, aggression, delinquency, and school failure beginning in early elementary school. It includes a classroom program, a schoolwide conflict management program, peer social skills training, and home-based family programming. The project also seeks to alter home and school climates to reduce the risk of adverse outcomes and to promote positive youth development.** **These programs have much to offer in terms of reaching out to families of at-risk youth, intervening with disruptive boys, advancing practices in dealing with mental health concerns in the juvenile justice system, and fostering a climate for positive youth development.** **Researchers at the Pittsburgh Youth Study continue to follow up with the youngest and oldest boys (the middle sample is not being followed up) to learn how their lives unfold and how they progress in the developmental pathways of disruptive and delinquent behavior. Future analyses will focus on examining factors in the boys' lives that increase the risk of pathway onset, penetration, and persistence. Attention will also be paid to the influence of community factors and peer influences.** **An important finding from these analyses is the latency period that occurs between physical fighting or violent episodes. Extensive periods of inactivity may surface as the boys provide additional data waves for analysis. In the meantime, interventions targeting violent juvenile offenders cannot be of short duration. Furthermore, followup timeframes for measurement of recidivism among violent juveniles must be more extensive than the latency periods of 6 to 18 months identified in this study. Children's behavior is not readily remolded and reshaped; the years of developmental pathways that led to the emergence of the present behavior must be considered.** **Each child has a lengthy course of development, and there are rarely quick fixes that will redirect a child on the pathway to positive development. This country must make a long-term commitment to each and every child and be prepared to stand beside them when they face difficult challenges and need nurturance and guidance. Before children can change unacceptable behavior, they must be shown how. This is truly the developmental task that challenges the evolving society in the United States today.**  |
| **Developmental Pathways**There is evidence that in juveniles' development less serious forms of delinquency precede the onset of more serious delinquent acts. This reflects the basic hierarchical and developmental feature of psychopathology -- less serious manifestations precede the more serious manifestations of deviance (Cicchetti, 1990). This was a common finding in earlier research on sequences in the development of delinquency undertaken by Huizinga (1995) and Elliott (1994) in their analysis of longitudinal data from the National Youth Survey and by Le Blanc, Côté, and Loeber (1991) in their analysis of longitudinal data from Quebec. Unlike the Pittsburgh Youth Study, these studies did not seek to elucidate developmental pathways between nondelinquent disruptive behaviors and various forms of delinquency. The development of problem behavior is more than just a sequence of behaviors that are independent of each other. Instead, investigators must focus on whether developmental sequences in problem behavior represent systematic changes in behavior of individuals over time. Such a conceptualization of pathways has the following features: * Most individuals who advance to behaviors down a pathway will have displayed behaviors characteristic of the earlier stages in the temporal sequence.
* Not all individuals progress to the most serious outcome(s); typically, increasingly smaller numbers of individuals reach more serious levels within a pathway.
* Individuals who reach a more serious level in a pathway tend to continue to display behaviors typical of earlier levels, rather than replace them with the more serious acts (Loeber, 1991).

At this point in the Pittsburgh Youth Study analysis, the researchers attempted to combine all of the behaviors sequenced in figure 4 into a single composite pathway for disruptive and delinquent behavior, employing what they termed an "empirical atheoretical approach." The researchers then sought to identify individual subjects whose behavioral sequence matched the composite. The researchers found a group of subjects who fit the main developmental sequence, but also a large remainder group who did not. For that reason, the researchers investigated whether the data could fit multiple pathways. Figure 4**Pathways in Disruptive and Delinquent Juvenile Behavior**Next, the researchers took a theoretical approach, going back to their earlier work in which authority conflict, covert, and overt problem behaviors were distinguished: Would three pathways prove better than one in accounting for actual behavioral sequences in the lives of individual youth? The following three conceptually distinct pathways are depicted in figure 5. * **Authority Conflict** is the first and earliest pathway. The pathway begins with stubborn behavior (stage 1) and can be followed by defiance (stage 2), such as refusal and disobedience. This, in turn, can be followed by authority avoidance (stage 3), such as truancy and running away from home. The authority conflict pathway applies to boys prior to age 12, because after that age some youth are likely to enter the pathway at the highest levels with behaviors such as truancy and staying out late at night.
* **Covert** acts and their escalation are addressed in the second pathway. This pathway tends to start with minor covert behaviors (stage 1), such as lying and shoplifting, and can be followed by property damage (stage 2), including vandalism and firesetting, and later by more serious forms of property crimes (stage 3), such as burglary.
* **Overt** or increasingly aggressive acts make up the third pathway. This sequence starts with minor aggression (stage 1), such as annoying others and bullying. This can be followed by physical fighting (stage 2), including gang fighting, and then by violence (stage 3), such as attacking someone, strong-arming, and rape.

Figure 5The researchers hypothesized that individuals may proceed along one or more pathways toward serious antisocial behavior. Each of the three proposed pathways represents major dimensions of disruptive behavior. The pathways differentiate between behaviors that result in conflict with or avoidance of authority figures (authority conflict pathway), property loss (covert pathway), and physical harm to others (overt pathway).  |

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| **Basic Dimensions of Disruptive and Delinquent Juvenile Behavior**In order to formulate a model for developmental pathways in disruptive and delinquent behavior, it is first necessary to identify the basic dimension(s) of those behaviors. To minimize the guesswork of this selection process, Loeber and Schmaling (1985) conducted a meta-analysis of the findings from 28 previous studies of parent or teacher ratings of disruptive child behaviors. The researchers produced a multidimensional scale of disruptive behavior, with overt behavior on one pole (e.g., temper tantrums and attacks on people), covert behavior on the other pole (e.g., theft and firesetting), and disobedience (e.g., authority conflict) situated in the middle of this scale. More recently, researchers (Frick et al., 1993) repeated the meta-analysis on an expanded number of 44 published studies involving 28,400 children and adolescents of both genders. The researchers incorporated into this meta-analysis the findings for 60 different factor analyses on child and adolescent problem behaviors using ratings by parents or teachers. The results shown in figure 3 basically replicated those reported by Loeber and Schmaling in 1985, with one difference -- a destructive-nondestructive dimension of problem behavior was also extracted. In figure 3, the distance between points on the matrix signifies the extent to which different behaviors correlate, or go together. That is, closely positioned behaviors (such as running away and truancy) tend to go together very often, whereas behaviors that are distant (such as running away and assault) tend to go together far less often. Figure 3This work was instrumental in advancing an understanding of how certain disruptive behaviors might be clustered in three conceptually similar groupings: overt, covert, and authority conflict. These clusters later served as the theoretical basis for proposing three developmental pathways, which will be discussed later. Property violations, shown in the upper left quadrant, are considered part of the covert pathway. Aggression, shown in the upper right quadrant, is considered part of the overt pathway. These overt and covert behaviors are placed higher on the destructive axis, because they result in personal harm or property loss or damage. The authority conflict pathway encompasses status violations and oppositional behaviors under the horizontal axis, which represents disruptive behaviors that do not inflict the same degree of harm or distress on others as aggression and property violations.  |
| **Demographic Characteristics of Persisters and Experimenters****The researchers investigated whether the demographic characteristics of the persisters were different from those of the experimenters. In each of the three pathways, the middle and oldest samples were separately compared regarding such factors as age, family socioeconomic status (SES), ethnicity, family structure (i.e., single-parent or two-parent household), and welfare status.** **Significant differences between persisters and experimenters were found in both samples across the three pathways. Persisters were slightly older than experimenters, with an average difference of only 4 months (a difference that is statistically significant). In both samples, persisters were significantly more likely to come from economically disadvantaged families, as indicated by the family receiving welfare benefits or having a lower SES. However, the two groups did not differ on ethnicity or family structure (Loeber, Keenan, and Zhang, 1997).**  |