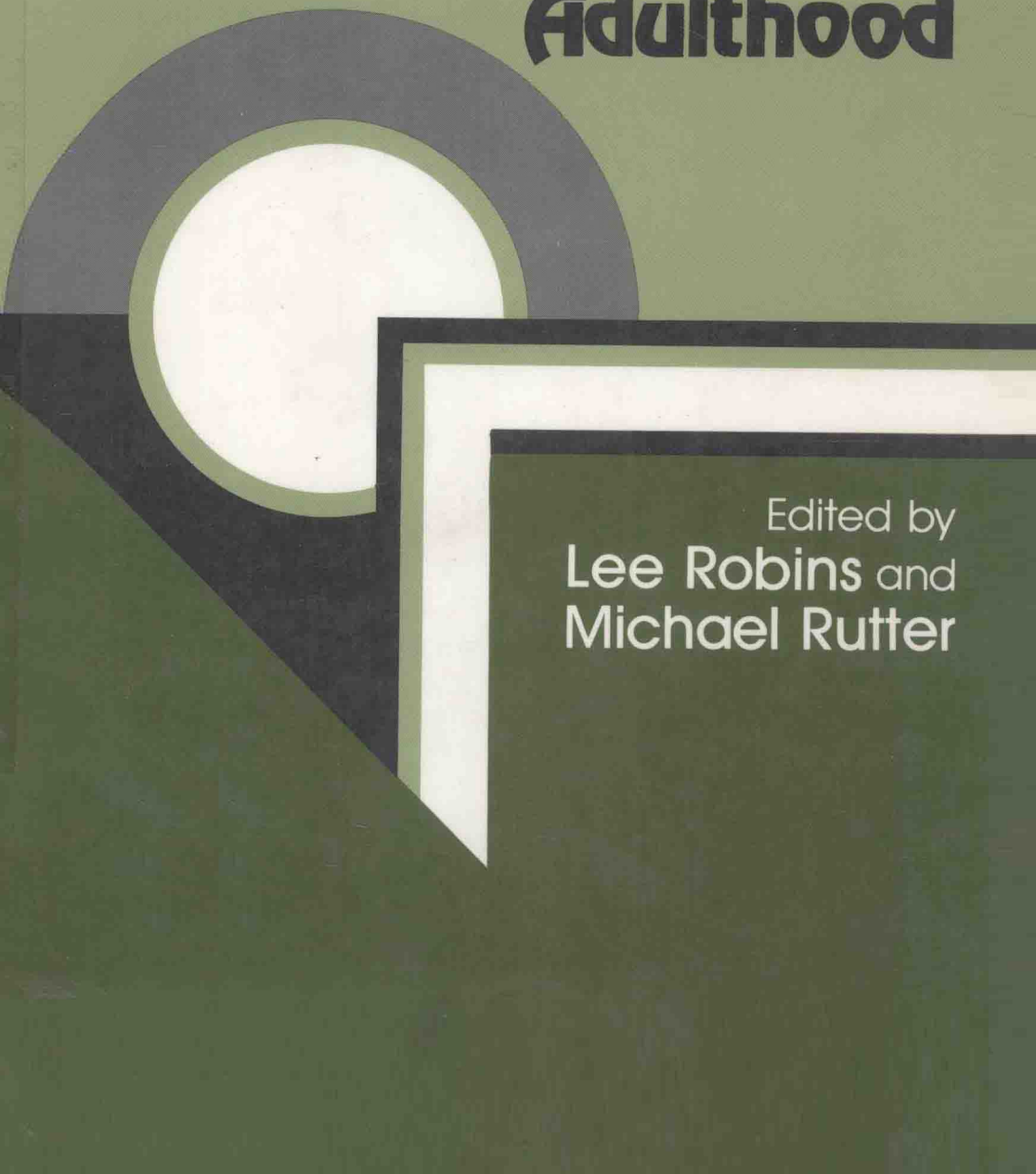


# **Straight and Devious Pathways from Childhood to Adulthood**

The cover features a large, stylized graphic on the left side. It consists of a white circle with a green border, partially enclosed by a dark grey semi-circle. Below this, a black triangle points upwards. To the right of these shapes is a white rectangular area with a green border, which is partially enclosed by a dark green rectangle. The background is a solid olive green color.

Edited by  
**Lee Robins and  
Michael Rutter**

# Straight and devious pathways from childhood to adulthood

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# Introduction

This volume is a series of chapters largely based on invited papers presented at the Life History Research Society in October 1987. This Society has as its theme longitudinal studies in psychopathology. The current volume centers on particularly long-term studies of this kind, those that begin in childhood and end in adulthood. The theme of the book is both continuities and discontinuities. The goal of these papers is not merely to note the frequency with which childhood factors predict adult outcomes, but to observe under what conditions the predicted links occur, and what prevents them from occurring. In addition, these papers ask how consistent is the pathway between childhood and adult life: Is it straight and narrow, or full of detours and unexpected reversals? Appearing in this volume are the initiators and torchbearers of many distinguished studies. Their results are exceptionally consistent, replicating across time and nations despite their use of varied methodologies. These leaders have been creative in answering increasingly difficult questions by inventing and borrowing new methodologies with which to answer them.

Longitudinal studies that begin with children and follow them into adult life have had two major thrusts: to learn whether personality traits have long-term stability and to identify early predictors of adverse outcomes. Deciding whether personality traits are stable has been problematic, because the same trait may be expressed differently at different ages. Nor does continuity of behavior necessarily mean continuity of personality traits, because the meaning of a behavior varies with age.

On the other hand, the second goal, finding predictors in childhood of adult outcomes, has been clearly met for one set of adult problems. A syndrome of adverse outcomes, including crime, low occupational achievement, substance abuse, and marital instability, is clearly predicted by a child's antisocial, noncooperative, or confrontive behavior combined with pathology in the family of rearing, as indicated by parents' psychiatric illness, crime, and violent or erratic child-rearing practices. Childhood behavior problems are virtually necessary to the display in adulthood of a general failure to conform to adult norms, although on rare occasions no

warning signs appear until middle or late adolescence. The role of the family pathology in adult nonconformity is almost as clear. In the current volume, Cohen and co-workers in a new study allow family characteristics to compete with peer relationships and neighborhood quality in predicting adult nonconformity, and they reaffirm the family as the dominant contributor. However, they suggest that substance abuse may not be simply a part of the predicted adult constellation, since its occurrence is much more dependent on neighborhood characteristics. The neighborhood lived in presumably determines how readily drugs are available. Newcomb and Bentler support substance abuse as a syndrome separable from other types of nonconformity by showing that earlier drug history is the best childhood predictor of later drug use. They also show that substance abuse is itself a true syndrome, because it is not easy to distinguish predictors of use of specific substances such as cocaine from predictors of use of other drugs.

Each study that has shown the virtual necessity of childhood behavior problems to adult nonconformity has also recognized that behavior problems are by no means sufficient to create this outcome. Recovery from behavior problems before reaching adulthood is common. Many difficult children become less difficult with age, and a minority of very difficult children become apparently normal adults. The natural histories of children who turn out to be normal adults despite the serious behavioral problems that generally predict adult difficulty are of great interest because they may reveal environmental interventions or concurrent personality traits and skills that seem to counterbalance the bad prognosis associated with this behavior. If such benevolent environments can be intentionally created for youngsters who would not encounter them naturally and if protective traits and skills can be taught or cultivated, they could constitute the basis for interventions particularly likely to succeed. Environments that have been implicated in increasing the risk of nonconformity in adulthood for antisocial children are broken homes, institutionalization, bad neighborhoods, deviant peers, and easy availability of psychoactive substances.

Trying to separate behavior-disordered children into those who will and those who will not recover has proved difficult. Authors of several chapters in this volume are looking for combinations of childhood behaviors and family characteristics that together greatly increase the risk. They also seek elements of the typical childhood configuration of predictors that are essential to continuity into adulthood, so that their absence would vitiate the predictive powers of others. Magnusson and Bergman find that aggression does not predict alcoholism or crime in adult life unless it appears as part of a syndrome of severe behavior problems. Robins finds that conduct problems are virtually necessary for the development of substance abuse, but that risks are greatly increased when the child with conduct disorder is exposed to



alcohol or drugs before the age of 15, and greatly decreased when exposure is deferred past age 18. McCord shows that broken homes predict crime only when the parents are incompetent or the father is alcoholic or criminal. These studies also consider the possibility that *adult* events may be necessary to the continuity of adversity from childhood. Rutter, Quinton, and Hill find that lack of a good marriage may be an essential factor for the adverse effects of institutional rearing and childhood behavior problems to continue into adulthood. Marriage, like choice of friends, is a problematic variable, because wisdom in selecting a mate may show that a shift from a deviant pathway has already occurred. Kandel, Davies, and Baydar discuss the difficulty of assigning causal power to friendships and matings. They believe that the best model is a reciprocal one; like chooses like, and the pair become even more alike on the basis of their association. But the tendency to choose someone like oneself (homophily) seems itself to be a personal predisposition that varies across individuals. Lack of homophily may be protective for a youngster with behavior problems.

The predictive power of childhood problems other than antisocial and confrontive behavior for adult life has not been as well substantiated. Some of the childhood behaviors that have been investigated are strongly correlated with conduct problems, for example, attention deficit, hyperactivity, substance abuse, and temper tantrums. For those behaviors, it is difficult to know whether they are themselves predictive, independent of the accompanying conduct problems. Two chapters, one by Mannuzza and co-workers and the other by Farrington and coworkers, address this problem by looking separately at hyperactive children with and without conduct problems to decide whether hyperactivity itself has predictive power. Their results seem to suggest that hyperactivity is a form of the broader spectrum of behavior problems, because hyperactive children without conduct problems have adult problems of the same type as do antisocial children. Indeed, Mannuzza and co-workers report no differences in diagnostic outcome whether antisocial behavior is absent or present. Farrington, Loeber, and van Kammen similarly find hyperactivity predicts crime in the absence of conduct problems, but also point to its unique effect on the timing of criminal offenses. Since hyperactivity begins very early in childhood, it may not be surprising that it is associated with particularly early convictions. Caspi, Elder, and Herbener's look at the consequences of temper tantrums suggests that they also belong to the conduct problem syndrome. Children who had temper tantrums between ages 8 and 10 grew up to have poor achievement educationally, in the military, and in jobs, similar to children with more serious behavior problems.

For the purely emotional difficulties of childhood, studies of their predictive power have been uncertain or even negative. In the 1950s a remarkable follow-up of patients of a children's clinic thought to be at risk

of schizophrenia because of excessive shyness found no such connection, but it did find continuity in their shyness: they became psychiatrically normal but shy adults (Michael, Morris, Soroker, 1957). Since then, there has been considerable argument about whether over-inhibited, worrying, nervous children have only transient problems limited to childhood, or whether they have the beginnings of a long-term deficit that has not been clearly described. More definitive results are now possible because of the availability of very large epidemiological studies, such as that reported by Rodgers. Interestingly he has shown that adult stressors must occur in order for childhood neurotic symptoms to be associated with an excess of adult psychiatric symptoms. This suggests that one of the reasons for variable results in past studies is that they ignored effects of the current environment on the expression of a "neurotic" predisposition dating from childhood. Or, the error may have been their treatment of emotional problems of childhood as a single syndrome. Caspi, Elder, and Herbener find that shyness and over-dependence in childhood have quite different adult consequences, the first negative and the second positive. Previous studies may have compared samples containing different mixes of more than one syndrome, thus yielding inconsistent results. Quinton, Rutter, and Gulliver, following children of psychiatric patients, found that those with emotional problems had as high a level of continuity into adulthood as did those with childhood conduct problems. And, as had been found for adult nonconformity, they found a virtual absence of adult problems in those offspring with no serious problems in childhood or adolescence.

The view that all human behavioral problems require both a genetic liability and an environmental trigger is as well accepted nowadays as the finding that adult antisocial behavior virtually requires a history of child behavior problems and poor parenting. But it was not long ago when there were violent battles between the hereditarians and the environmentalists. Adoption studies were designed to discriminate the genetic from the environmental contributions of the family. Since the offspring followed as adults had not been in contact with their biological parents since birth, the biological parents contributed only a genetic liability. When the children were found to have an increased risk for the biological parents' disorders while adopted children of unaffected parents did not, the role of a genetic factor was confirmed. But modern adoption studies like those of Tienari et al. and Cadoret et al. have contributed to a reconciliation of the genetic and environmental views by showing that whether or not the parents' disorder is actually expressed in their offspring depends both on the early experiences associated with the adoption process itself (length of initial institutionalization or placement in foster care and age at adoption) and the quality of the adoptive home. Mednick and coworkers played a vital role in fostering the study of environmental factors within the high-risk design, in which

children presumed at genetic risk because of having affected parents were studied over time. They studied intrauterine and perinatal trauma as environmental factors that influenced both whether the parental illness would be expressed, and how. Cannon, Mednick, and Parnas propose that perinatal insult is detectable in tests of psychophysiological responsiveness. The tests plus teacher observations predict the form in which the offspring of schizophrenics will express the disorder, with predominantly negative or predominantly positive symptoms.

Most of these long-term studies have spent much effort on discriminating which forms of the child's behavior are predictive. Yet Erlenmeyer-Kimling and co-workers, using the high-risk design, find considerable overlap in outcomes for children of parents with schizophrenia and major affective disorders. Further, adjustment during follow-up is not continuous. One can infer from their results that cross-sectional follow-ups would greatly underestimate the number of offspring who will develop a disorder, since many of those well at the time of follow-up will have had previous episodes of poor adjustment. Maughan and Pickles have similar results when investigating the outcome of adopted illegitimate children compared with a control group of legitimate children. The adoptees' disadvantage was most marked at age 11; thereafter, they began more closely to resemble the legitimate control group.

All of these studies contrast status in childhood with adult status. In some cases, this is done through prospective follow-ups, beginning with evaluations in childhood and later reassessing the same subjects as adults, with varying frequency of assessments in the interval between. Prospective studies linking childhood to adulthood can take a very long time. Some studies in this book were begun by their authors when they were very young, and it is a tribute to their perseverance and to the prescience of their original design for data collection that their studies are still ongoing and are useful for answering the more complex questions that are now being put to them. Investigators Chess and Thomas recognized the potential of longitudinal studies for answering questions about the interactions of predisposition and environment from the very beginning. They were among the first to argue that personality is a product of both what one is born with and how one's parents react to that initial package, a viewpoint that few would disagree with now but that was somewhat heretical when they began their study more than 30 years ago. Their long case histories based on multiple observation points demonstrate how insight into predispositions detectable in early childhood can help adults manage their lives successfully, particularly if they were reared in supportive and understanding families.

Authors who did not undertake follow-up studies early in their own careers have been able to accomplish long-term follow-ups by inheriting populations of children assembled by their seniors, and they have added the

dedication needed to keep the follow-up going into their subjects' early and middle adulthood, often well beyond the period when their originators expected the study to terminate. Joan McCord, for example, has so fostered the Cambridge-Somerville study that her name is now better known in connection with it than are the names of Witmer and Powers, who first wrote about its results. Similarly, Glen Elder inherited the Berkeley Guidance Study and has made it his own; he has now found a third generation to take it over in Avshalom Caspi. Elder, like Farrington, who inherited West's study of 8-year-old boys in working-class London, has enriched the original design as well as extended its duration. Heirs of exceptionally large samples include Bryan Rodgers, a third-generation investigator after James Douglas and Michael Wadsworth, and Barbara Maughan, who inherited work from Butler and others. They are following two of Britain's three mammoth birth cohorts of children born in a single week 12 years apart. Neither study began with a primarily psychological focus; yet both authors have carved studies of psychological and behavioral problems from them.

An alternative to inheritance as a way to conduct a child-to-adult longitudinal study is to build a longitudinal extension onto a platform of existing old administrative records (as have Rutter, et al., LeBlanc, Cadoret, et al. and Tienari et al.) or onto old protocols of cross-sectional or short-term longitudinal research (Cohen et al., Quinton et al.). The old records serve as the initial assessment, allowing the researcher to begin his or her work after the subjects are already adult, thus saving the long wait. A judicious selection of record sources is needed to acquire systematically collected childhood data that cover the vital predictors of outcome. One report (Robins and McEvoy) in the current volume has trusted the recall of childhood behavior by adults, thus making a cross-sectional study serve to connect child and adult measures in lieu of long-term follow-up. Trusting recall is a dangerous enterprise, since it will be imperfect and, more seriously, may be biased by the subsequent adult history. However, the topics covered in their report—childhood behavior problems and substance use and abuse—are ones that have been extensively tested for reliability, and recall for them has been found to remain surprisingly intact over time.

A few studies reported here took none of these short-cuts (Magnusson and Bergman, Chess and Thomas, Erlenmeyer-Kimling et al., Cannon et al., Mannuzza et al., Kandel et al., Newcomb and Bentler), but the investigators began the studies themselves and continue to follow the subjects over time. When these initiators are still reasonably young, their studies can qualify for inclusion in a volume linking child to adult statuses only if the subjects are children in or near adolescence, so that the interval from childhood to early adulthood is brief. And even so we must admit to an occasional stretching of the definition of adult to include papers by authors who have developed

powerful tools for studying predictors of change over time (a troublesome analytic problem still), tools that will be of great use to their colleagues struggling to disentangle risk from protective factors. Perhaps it is just as well to have a few results for adolescents as well as adults, since Gould, Shaffer, and Davies point to adolescent death as a factor that will limit the proportion of initial samples who will survive to be followed as adults. They show that suicides increase with each year of life, and particularly diminish samples of antisocial and substance-abusing white males.

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