

RISK *and*  
PROTECTIVE  
FACTORS *in the*  
DEVELOPMENT *of*  
PSYCHOPATHOLOGY

*Edited by*

JON ROLF

ANN S. MASTEN

DANTE CICCHETTI

KEITH H. NUECHTERLEIN

SHELDON WEINTRAUB

# **Risk and protective factors in the development of psychopathology**

*Edited by*

JON ROLF, ANN S. MASTEN,  
DANTE CICCETTI, KEITH H. NUECHTERLEIN,  
*and* SHELDON WEINTRAUB



**CAMBRIDGE**  
**UNIVERSITY PRESS**

Published by the Press Syndicate of the University of Cambridge  
The Pitt Building, Trumpington Street, Cambridge CB2 1RP  
40 West 20th Street, New York, NY 10011-4211, USA  
10 Stamford Road, Oakleigh, Victoria 3166, Australia

© Cambridge University Press 1990

First published 1990  
First paperback edition 1992

Printed in the United States of America

*Library of Congress Cataloging-in-Publication Data*

Risk and protective factors in the development of psychopathology /  
edited by Jon Rolf...[et al.].

p. cm.

"This volume is a tribute to Norman Garnezy by students and  
colleagues" – Pref.

Includes bibliographics and indexes.

ISBN 0-521-35099-9

1. Mental illness – Risk factors. 2. Child development.  
3. Adjustment (Psychology) in children. 4. Schizophrenia – Risk  
factors. I. Rolf, Jon E. II. Garnezy, Norman.

[DNLM: 1. Adaptation, Psychological. 2. Child development  
Disorders – psychology. 3. Psychopathology. 4. Risk Factors.  
5. Schizophrenia – etiology. WM 100 R595]

RC455.4.R56R57 1989

616.89'071 – dc20

DNLM/DLC

for Library of Congress

89-15807

CIP

*British Library Cataloguing in Publication Data*

Risk and protective factors in the development of  
psychopathology.

1. Medicine. Psychopathology

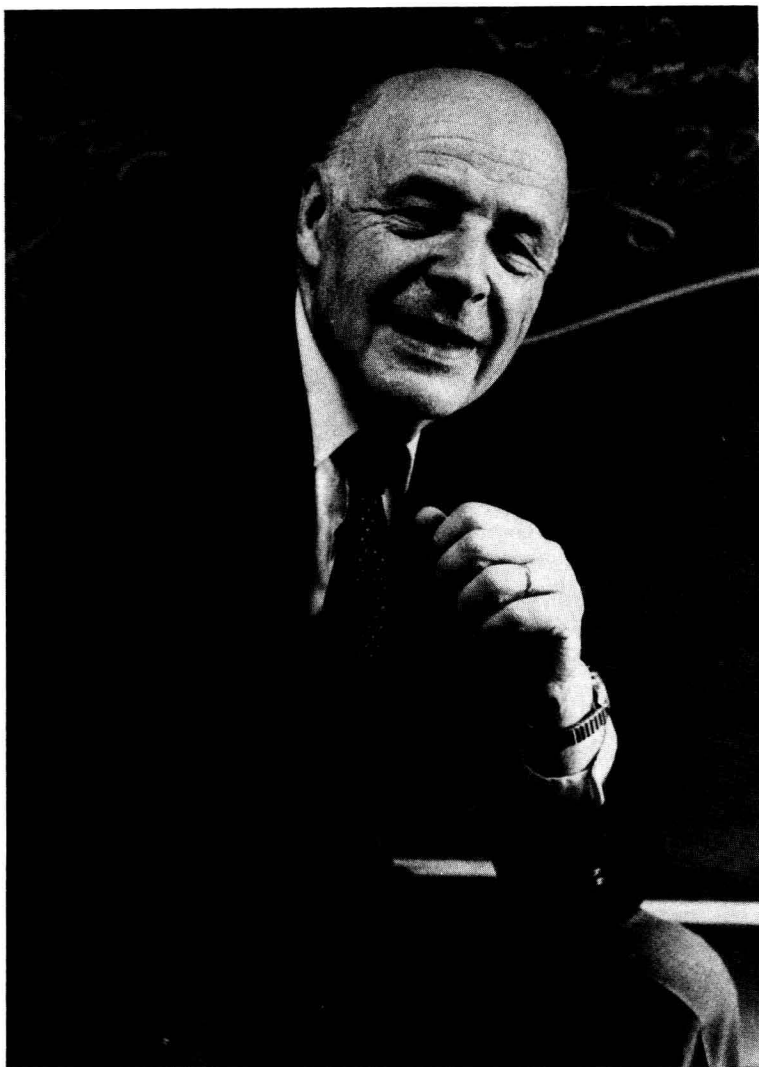
I. Rolf, Jon

616.89'07

ISBN 0-521-35099-9 hardback

ISBN 0-521-43972-8 paperback

## **Risk and protective factors in the development of psychopathology**



Norman Garmezy

## Contributors

---

Thomas M. Achenbach  
Department of Psychiatry  
University of Vermont  
Burlington, Vermont

Alfred L. Baldwin  
Department of Psychology  
University of Rochester  
Rochester, New York

Clara Baldwin  
Department of Psychology  
University of Rochester  
Rochester, New York

Jack Block  
Board of Studies in Psychology  
University of California, Berkeley  
Berkeley, California

Deborah M. Capaldi  
Oregon Social Learning Center  
University of Oregon  
Eugene, Oregon

Dante Cicchetti  
Departments of Psychology and  
Psychiatry  
Mt. Hope Family Center  
University of Rochester  
Rochester, New York

Robert E. Cole  
Department of Psychology  
University of Rochester  
Rochester, New York

John J. Conger  
School of Medicine  
University of Colorado  
Denver, Colorado

Regina Driscoll  
Children's Hospital  
St. Paul, Minnesota

Aaron T. Ebata  
Department of Psychiatry and  
Behavioral Sciences  
Stanford University School of  
Medicine  
Stanford, California

Byron Egeland  
Institute of Child Development  
University of Minnesota  
Minneapolis, Minnesota

Norman Garnezy  
Department of Psychology  
University of Minnesota  
Minneapolis, Minnesota

Jane L. Gibbons  
Department of Psychology  
Harvard University  
Cambridge, Massachusetts

Per F. Gjerde  
Board of Studies in Psychology  
University of California at Santa Cruz  
Santa Cruz, California

Marion Glick  
Department of Psychology  
Yale University  
New Haven, Connecticut

Michael J. Goldstein  
Department of Psychology  
University of California,  
Los Angeles  
Los Angeles, California

Irving I. Gottesman  
Department of Psychology  
University of Virginia  
Charlottesville, Virginia

Daniel R. Hanson  
Department of Psychiatry  
University of Minnesota  
Minneapolis, Minnesota

Courtenay M. Harding  
Department of Psychiatry  
Yale University School of  
Medicine  
New Haven, Connecticut

Leonard L. Heston  
Department of Psychiatry  
University of Minnesota  
Minneapolis, Minnesota

Philip S. Holzman  
Department of Psychology  
Harvard University  
Cambridge, Massachusetts

Debra M. Japzon  
Department of Psychology  
University of Denver  
Denver, Colorado

Jeannette Johnson  
Laboratory of Clinical Brain Studies  
National Institute of Alcohol and Drug  
Abuse  
Bethesda, Maryland

Maureen O. Johnson  
Department of Psychology  
Harvard University  
Cambridge, Massachusetts

Jerome Kagan  
Department of Psychology  
Harvard University  
Cambridge, Massachusetts

Gloria G. Keller  
Department of Psychology  
University of Denver  
Denver, Colorado

Ann S. Masten  
Institute of Child Development  
University of Minnesota  
Minneapolis, Minnesota

Olivia Moorehead-Slaughter  
Judge Baker Children's Center  
Children's Hospital  
Harvard Medical School  
Cambridge, Massachusetts

Patricia Morison  
Department of Psychology  
University of Minnesota  
Minneapolis, Minnesota

Keith H. Nuechterlein  
Department of Psychiatry and  
Biobehavioral Sciences  
University of California,  
Los Angeles  
Los Angeles, California

Margaret O'Dougherty  
Department of Psychology  
Ohio State University  
Columbus, Ohio

Gerald R. Patterson  
Oregon Social Learning Center  
University of Oregon  
Eugene, Oregon

David Pellegrini  
Center for the Study of Youth  
Development  
Catholic University  
Washington, D.C.

Anne C. Petersen  
 Department of Human Development  
 and Family Studies  
 Pennsylvania State University  
 University Park, Pennsylvania

Susan Phipps-Yonas  
 Minnesota Psychotherapy and  
 Consultation Services  
 St. Paul, Minnesota

Robert C. Pianta  
 Curry Programs in Clinical and School  
 Psychology  
 University of Virginia  
 Charlottesville, Virginia

Marian Radke-Yarrow  
 Laboratory of Developmental  
 Psychology  
 National Institute of Mental Health  
 Bethesda, Maryland

J. Steven Reznick  
 Department of Psychology  
 Yale University  
 New Haven, Connecticut

John Richters  
 Child and Adolescent Disorders  
 Research Branch  
 National Institute of Mental Health  
 Rockville, Maryland

Judith Rodin  
 Department of Psychology  
 Yale University  
 New Haven, Connecticut

Jon Rolf  
 Department of Maternal and Child  
 Health  
 School of Hygiene and Public Health  
 Johns Hopkins University  
 Baltimore, Maryland

Michael Rutter  
 Department of Child and Adolescent  
 Psychiatry  
 Institute of Psychiatry  
 Denmark Hill  
 London, England

Arnold J. Sameroff  
 Department of Psychiatry and Human  
 Behavior  
 Brown University  
 E. P. Bradley Hospital  
 East Providence, Rhode Island

Ronald Seifer  
 Department of Psychiatry and Human  
 Behavior  
 Brown University  
 E. P. Bradley Hospital  
 East Providence, Rhode Island

Tracy Sherman  
 Laboratory of Developmental  
 Psychology  
 National Institute of Mental Health  
 Bethesda, Maryland

Lisa R. Silberstein  
 Department of Psychology  
 Yale University  
 New Haven, Connecticut

Nancy Snidman  
 Department of Psychology  
 Harvard University  
 Cambridge, Massachusetts

L. Alan Sroufe  
 Institute of Child Development  
 University of Minnesota  
 Minneapolis, Minnesota

John S. Strauss  
 Department of Psychiatry  
 Yale University School of  
 Medicine  
 New Haven, Connecticut

Ruth H. Striegel-Moore  
 Department of Psychology  
 Wesleyan University  
 Middletown, Connecticut

Auke Tellegen  
 Department of Psychology  
 University of Minnesota  
 Minneapolis, Minnesota



Norman F. Watt  
Department of Psychology  
University of Denver  
Denver, Colorado

Sheldon Weintraub  
Department of Psychology  
SUNY at Stony Brook  
Stony Brook, New York

Francis S. Wright  
Department of Pediatrics and Neurology  
Ohio State University  
Columbus, Ohio

Edward Zigler  
Department of Psychology  
Yale University  
New Haven, Connecticut

## Preface

---

This volume is a tribute to Norman Garmezy by students and colleagues he has influenced during four decades of research and teaching. Norm has been described as the Johnny Appleseed of American psychology, planting ideas around the world concerning risk, competence, and protective factors in the development of psychopathology. The fruits of his ideas and research are reflected in the diverse chapters of this volume, which span infancy to adult development.

Garmezy has had a profound influence on the direction of research in psychopathology, pioneering new areas of study throughout his career. One abiding interest has been understanding the roots of schizophrenia. Initially, he studied this serious disorder in adults (Garmezy, 1952a,b; Rodnick & Garmezy, 1957). The theme of competence, a hallmark of Norm's career, soon emerged as he and Elliott Rodnick studied the role of premorbid competence in schizophrenia (Garmezy, 1970a; Garmezy & Rodnick, 1959).

Norm's interest in the etiology of schizophrenia took a new turn in Minnesota as he, along with a cadre of students and other pioneering investigators, adopted the "risk" strategy for studying the development of schizophrenia (Garmezy, 1974a, 1976; Garmezy & Devine, 1984; Garmezy & Streitman, 1974). His influence in this area is evident in chapters in this volume written by students who trained with Norm during this period of focus, including Regina Driscoll, Keith H. Nuechterlein, Susan Phipps-Yonas, Jon Rolf, and Sheldon Weintraub, as well as chapters by colleagues in the risk consortium.

Once again the theme of competence quickly surfaced. Garmezy immediately recognized the significance of the large proportion of high-risk children who, often despite adverse rearing conditions, appeared to develop well. The ideas of invulnerability, stress resistance, and resilience soon took root in his thinking and research (Garmezy, 1970b, 1971, 1974b). Gradually, Garmezy and his students broadened their focus on successful adaptation despite risk to include psychosocially disadvantaged children (Garmezy & Nuechterlein, 1972), children exposed to stressful life events (Garmezy, 1981), and handi-

capped children (O'Dougherty, Wright, Garmezy, Loewenson, & Torres, 1983; Raison, 1982; Silverstein, 1982). Students from this later period of research who have contributed to this volume include Ann S. Masten, Patricia Morison, Margaret O'Dougherty, and David Pellegrini.

One legacy of the risk researchers, including Norm, is the boost they gave to the emergence of developmental psychopathology as an integrative, interdisciplinary framework for the study of psychopathology (Garmezy 1974c, 1977). The risk strategy inevitably yielded greater concern with longitudinal research designs, developmental patterns of behavior, and adaptation to stress, now viewed as fundamental to developmental psychopathology. Thomas M. Achenbach and Dante Cicchetti, both of whom were influenced by Garmezy in their training at Minnesota, set the stage in this volume by reviewing the history of this perspective and its potential for theory, research, and practice in psychology.

This volume is divided into five parts. Following the introductory chapters on developmental psychopathology, Part II focuses on early risks to development. The theme of Part III is competence under adversity, with emphasis on studies of school-aged children. The last two parts focus on adaptation in adolescence and adulthood, the latter part primarily dealing with the development of schizophrenia. In each part, the themes of Garmezy's career are evidenced: psychopathology and competence, risk and protective factors, vulnerability and resilience. To conclude the volume, we thought it most appropriate for Garmezy himself to close with his reflections on the future for research on risk and protective factors in developmental psychopathology.

Norman Garmezy's inspiration and generosity as a teacher and mentor led to this festschrift. His generativity as a colleague and catalyst for research in the field is honored by the contributions of his peers in the following pages.

The Editors

## References

- Garmezy, N. (1952a). Approach and avoidance behavior of schizophrenic and normal subjects as a function of reward and punishment. *American Psychologist*, 7, 334.
- Garmezy, N. (1952b). Stimulus differentiation by schizophrenic and normal subjects under conditions of reward and punishment. *Journal of Personality*, 20, 253-76.
- Garmezy, N. (1970a). Process and reactive schizophrenia: Some conceptions and issues. In M. Katz, J. Cole, & W. E. Barton (Eds.), *The role and methodology of classification in psychiatry and psychopathology* (pp. 419-66) (Department of Health, Education, and Welfare). Washington, DC: U.S. Government Printing Office. (Revised and reprinted in *Schizophrenia Bulletin*, 1, 30-74)
- Garmezy, N. (1970b). Vulnerable children: Implications derived from studies on an internalizing-externalizing symptom dimension. In J. Zubin & Z. M. Freedman (Eds.), *Psychopathology of adolescence* (pp. 212-39). New York: Grune & Stratton.
- Garmezy, N. (1971). Vulnerability research and the issue of primary prevention. *American Journal of Orthopsychiatry*, 41, 101-16.

- Garmezy, N. (1974a). Children at risk: The search for the antecedents to schizophrenia: Part II. Ongoing research programs, issues and intervention. *Schizophrenia Bulletin*, 9, 55–125.
- Garmezy, N. (1974b). The study of competence in children at risk for severe psychopathology. In E. J. Anthony & C. Koupernick (Eds.), *The child in his family: Children at psychiatric risk* (Vol. 3, pp. 77–98). New York: Wiley.
- Garmezy, N. (1974c). *The study of children at risk: New perspectives for developmental psychopathology*. Distinguished Scientist Award Presentation, Section III, Division 12, APA.
- Garmezy, N. (1976). The experimental study of children vulnerable to psychopathology. In A. Davids (Ed.), *Child personality and psychopathology* (Vol. 2, pp. 171–216). New York: Wiley.
- Garmezy, N. (1977). The role of an emergent developmental psychopathology in the study of vulnerability to psychosis. In B. Brown (Ed.), *The study of vulnerability to psychosis*. Washington, DC: U.S. Government Printing Office.
- Garmezy, N. (1981). Children under stress: Perspectives on antecedents and correlates of vulnerability and resistance to psychopathology. In A. I. Rabin, J. Aronoff, A. M. Barclay, & R. A. Zucker (Eds.), *Further explorations in personality* (pp. 196–269). New York: Wiley.
- Garmezy, N., & Devine, V. T. (1984). Project Competence: The Minnesota studies of children vulnerable to psychopathology. In N. Watt, J. Rolf, L. C. Wynne, & E. J. Anthony (Eds.), *Children at risk for schizophrenia* (pp. 289–303). Cambridge University Press.
- Garmezy, N., & Nuechterlein, K. (1972). Invulnerable children: The fact and fiction of competence and disadvantage. *American Journal of Orthopsychiatry*, 42, 328–9 (abstract).
- Garmezy, N., & Rodnick, E. H. (1959). Premorbid adjustment and performance in schizophrenia: Implications of interpreting heterogeneity in schizophrenia. *Journal of Nervous and Mental Disease*, 129, 450–66.
- Garmezy, N., & Streitman, S. (1974). Children at risk: The search for the antecedents of schizophrenia. Part I. Conceptual models and research methods. *Schizophrenia Bulletin*, 8, 14–90.
- O'Dougherty, M., Wright, F. S., Garmezy, N., Loewenson, R. B., & Torres, F. (1983). Later competence and adaptation in infants who survive heart defects. *Child Development*, 54, 1129–42.
- Raison, S. B. (1982). *Coping behavior of mainstreamed physically handicapped students*. Unpublished doctoral dissertation, University of Minnesota.
- Rodnick, E. H., & Garmezy, N. (1957). An experimental approach to the study of motivation in schizophrenia. In M. R. Jones (Ed.), *Nebraska Symposium on Motivation* (pp. 109–84). Lincoln: University of Nebraska Press.
- Silverstein, P. R. (1982). *Coping and adaptation in families of physically handicapped school children*. Unpublished doctoral dissertation, University of Minnesota.

# Contents

---

List of contributors	page viii
Preface	xiii
<b>Part I Introduction: Historical and theoretical roots of developmental psychopathology</b>	<b>1</b>
1 A historical perspective on the discipline of developmental psychopathology <i>Dante Cicchetti</i>	2
2 What is “developmental” about developmental psychopathology? <i>Thomas M. Achenbach</i>	29
<b>Part II Contributions of the high-risk child paradigm: continuities and changes in adaptation during development</b>	<b>49</b>
3 Early contributors to developmental risk <i>Arnold J. Sameroff and Ronald Seifer</i>	52
4 Beyond diathesis: toward an understanding of high-risk environments <i>John Richters and Sheldon Weintraub</i>	67
5 Hard growing: children who survive <i>Marian Radke-Yarrow and Tracy Sherman</i>	97
6 Children born at medical risk: factors affecting vulnerability and resilience <i>Margaret O’Dougherty and Francis S. Wright</i>	120
7 A mediational model for boys’ depressed mood <i>Gerald R. Patterson and Deborah M. Capaldi</i>	141

8	A temperamental disposition to the state of uncertainty <i>Jerome Kagan, Jane L. Gibbons, Maureen O. Johnson, J. Steven Reznick, and Nancy Snidman</i>	164
<b>Part III Competence under adversity: individual and family differences in resilience</b>		<b>179</b>
9	Psychosocial resilience and protective mechanisms <i>Michael Rutter</i>	181
10	Maternal stress and children's development: prediction of school outcomes and identification of protective factors <i>Robert C. Pianta, Byron Egeland, and L. Alan Sroufe</i>	215
11	Competence under stress: risk and protective factors <i>Ann S. Masten, Patricia Morison, David Pellegrini, and Auke Tellegen</i>	236
12	Stress-resistant families and stress-resistant children <i>Alfred L. Baldwin, Clara Baldwin, and Robert E. Cole</i>	257
13	Children's adjustment to parental divorce: self-image, social relations, and school performance <i>Norman F. Watt, Olivia Moorehead-Slaughter, Debra M. Japzon, and Gloria G. Keller</i>	281
<b>Part IV The challenge of adolescence for developmental psychopathology</b>		<b>305</b>
14	The development of psychopathology in adolescence <i>Aaron T. Ebata, Anne C. Petersen, and John J. Conger</i>	308
15	Depressive symptoms in late adolescence: a longitudinal perspective on personality antecedents <i>Jack Block and Per F. Gjerde</i>	334
16	Vulnerability and resilience in the age of eating disorders: risk and protective factors for bulimia nervosa <i>Judith Rodin, Ruth H. Striegel-Moore, and Lisa R. Silberstein</i>	361
17	Protected or vulnerable: the challenges of AIDS to developmental psychopathology <i>Jon Rolf and Jeannette Johnson</i>	384
<b>Part V Factors in the development of schizophrenia and other severe psychopathology in late adolescence and adulthood</b>		<b>405</b>
18	Family relations as risk factors for the onset and course of schizophrenia <i>Michael J. Goldstein</i>	408

19	Long-range schizophrenia forecasting: many a slip twixt cup and lip <i>Daniel R. Hanson, Irving I. Gottesman, and Leonard L. Heston</i>	424
20	Vulnerability factors in children at risk: anomalies in attentional functioning and social behavior <i>Keith H. Nuechterlein, Susan Phipps-Yonas, Regina Driscoll, and Norman Garmezy</i>	445
21	Schizophrenia: a new model of its transmission and its variations <i>Philip S. Holzman</i>	480
22	Premorbid competence and the courses and outcomes of psychiatric disorders <i>Marion Glick and Edward Zigler</i>	497
23	Relationships between adult development and the course of mental disorder <i>John S. Strauss and Courtenay M. Harding</i>	514
	A closing note: Reflections on the future <i>Norman Garmezy</i>	527
	Author index	535
	Subject index	551

## *Part I*

### **Introduction: Historical and theoretical roots of developmental psychopathology**

Dante Cicchetti and Thomas M. Achenbach set the stage for this volume in these first two chapters by examining the historical and theoretical underpinnings of developmental psychopathology. Cicchetti traces the roots of this new discipline in three theories of development, each of which was influenced by Western philosophy and embryology: Freudian psychoanalytic theory, Wernierian organismic theory, and Piagetian structural theory. Cicchetti illustrates how, in diverse disciplines, the study of atypical or pathological populations has served to enrich and confirm the understanding of normal development, particularly in regard to the hierarchically integrated and dynamic nature of development. More recently, a developmental approach to pathological or atypical populations is leading to exciting advances in our knowledge of normal development as well as abnormal development.

Achenbach examines in detail the potential of the developmental perspective as a framework for organizing research on psychopathology and stimulating integrative theory, as well as for improving our assessment and intervention efforts with children at risk for or already manifesting psychological problems. The implications of this perspective for training in different disciplines are also explored, with Achenbach suggesting core areas of training for professionals who share a common concern about psychopathology whether they are students of nursing, pediatrics, psychiatry, clinical psychology, human development, education, or social work.



# 1 A historical perspective on the discipline of developmental psychopathology

---

*Dante Cicchetti*

One way of measuring the success of a new scientific discipline is to examine its impact on the current literature. The recent increase in the number of books, articles, and journals dealing with developmental psychopathology reflects a growing recognition of the significance of this discipline within the behavioral sciences. For example, several journals, including the *American Journal of Psychiatry*, *The Journal of Consulting and Clinical Psychology*, and *The Journal of the American Academy of Child and Adolescent Psychiatry*, have published special sections on the topic. Moreover, three journals have devoted one or more special issues to the field of developmental psychopathology – *Child Development* (Cicchetti, 1984b), *The Journal of Child Psychology and Psychiatry* (Stevenson, 1985), and *New Directions for Child Development* (Cicchetti & Beeghly, 1987; Cicchetti & Schneider-Rosen, 1984a; Nannis & Cowan, 1988; Rizley & Cicchetti, 1981; Selman & Yando, 1980; Tronick & Field, 1986). Furthermore, the most recent edition of the *Handbook of Child Psychology* (Mussen, 1983) contained the first chapter on the topic of developmental psychopathology (Rutter & Garnezy, 1983) since the publication of its first edition over 40 years ago. In addition, textbooks, handbooks, and scholarly references are appearing increasingly in the literature (Achenbach, 1974/1982; Cicchetti & Beeghly, 1990; Cicchetti & Carlson, 1989; Gollin, 1984; Lewis & Miller, in press; Rutter, Izard, & Read, 1986; Santostefano, 1978; Trad, 1986, 1987; Wenar, 1982; Zigler & Glick, 1986). Moreover, there is now a journal devoted

The writing of this manuscript was supported by grants from the John D. and Catherine T. MacArthur Foundation Network on Early Childhood, the Foundation for Child Development Young Scholars Program, and the National Institute of Mental Health (R01-MH-37960). In addition, I would like to extend my appreciation to Jennifer White for providing me with important critical feedback on this manuscript. Moreover, I would like to thank Sara Campbell, Joia DiStefano, and Victoria Gill for typing it. Finally, I would like to dedicate this chapter to Norman Garnezy. As a teacher, mentor, and friend, he has been a continued source of inspiration to me. Without his guidance and example, I would not have chosen to become a developmental psychopathologist. For that, and for many other things known to him, I give my sincerest affection and gratitude.