

Chapter 4

Environmental Risk Factors and Children's Mental Health Problems

Environmental Risk Factors and Children's Mental Health Problems

INTRODUCTION

As described in chapter 3, diagnostic manuals, such as the American Psychiatric Association's *Diagnostic and Statistical Manual* (DSM-III), define mental disorders and set out criteria that must be met for a mental health problem to be considered a disorder. In DSM-III (19), a mental health problem is considered a disorder only if the problem is:

... a clinically significant behavioral or psychological syndrome or pattern ... that is typically associated with a painful symptom (distress) or impairment in one or more areas of functioning.

Although defining and establishing criteria for mental disorders is useful, it can mean that children with subclinical mental health problems, or those in danger of developing a disorder, may not be considered to be in need of mental health services. In reality, children, particularly those exposed to environmental stressors, may exhibit discrete mental health problems. For example, a child whose parents divorce may experience anger and depression. Children with a major physical illness may experience loneliness when they cannot see their family and friends. Children born into or thrust into poverty may experience constant anxiety as a result of financial insecurity. Further, some children are exposed to multiple stressors and so may be vulnerable to a number of mental health problems.

The multiaxial system of DSM-III incorporates environmental stressors on Axis IV (psychosocial stressors, including stress arising from physical illness) (19; also see ch. 3). Because DSM-III is primarily a manual for clinicians, however, it necessarily treats psychosocial stressors as additional, rather than primary, information to be used in developing a mental health treatment plan for a patient. Although there is disagreement about the value of primary prevention of mental health

problems (15), it is widely agreed that it may be possible to address certain environmental stressors preventively.

This chapter describes a number of environmental stressors that children may be exposed to, along with the mental health problems that may be caused or exacerbated by such stressors. The chapter does not review every environmental factor that poses a risk to children's mental health, but it does attempt to cover the specific environmental, primarily psychosocial, factors that pose the greatest risk and to illustrate generally the effect that environment can have on the development of children's mental health problems. And, as acknowledged by DSM-III's multiaxial diagnostic system, these environmental factors can also affect the course of mental health problems, and plans to treat such problems. Discussed are poverty; premature birth; parental psychopathology such as alcoholism, maltreatment, teenage parenting (a problem for both parent and child); and parental divorce. The purposes are to focus attention on the range of children's mental health problems that may be amenable to intervention, whether the intervention is designed to alleviate pain or prevent development of more severe problems; and to raise the issue that it seems essential to develop policies and programs so that they work for the particular children who need to be helped. As discussed in chapter 2, several national commissions have stressed the importance of attending to environmental factors in developing mental health programs for children. These commissions have also made specific suggestions for developing such policies and programs. However, it is beyond the scope of this background paper to draw out fully all the implications of designing a mental health services system so that it is responsive to all the children in need.

INTERACTIONS AMONG ENVIRONMENTAL RISK FACTORS

Single environmental risk factors rarely occur in isolation. Much more common is the occurrence of several risk factors together—often in the context of a broad risk factor such as low socio-economic status. Child maltreatment, for example, most often occurs in families that are disorganized, under high stress, and of low socioeconomic status (219,499,500). Parental divorce often results in downward economic mobility, relocation to more stressful circumstances, increased social isolation, and loss of important support systems (289).

For a comprehensive look at the mental health needs of children, it is important to consider how risk factors interact with one another. For example, ethnicity, social class, and related variables (e.g., years of parent education) have been found to have a powerful influence on a child's development. They, in turn, are related to parental attitudes towards childrearing (360, 572); to the qual-

ity of parent-child interaction (640); to children's cognition, motivations, personality, and achievement behavior (144,149,150,241,287,320,392, 732); and, of course, to the community in which a child lives and the school he or she attends.

It is also important to consider children's difficulties in the context of knowledge about normal development. It is useful to describe the negative effects of environmental risk factors in terms of a child's difficulties with completing important developmental tasks. Developmental tasks are the activities children engage in so as to advance to the next stage of their development (e.g., becoming toilet-trained is a developmental task for toddlers; developing intense friendships with peers is a developmental task for young adolescents). A child's failure to carry out salient developmental tasks can appropriately be viewed as an indicator of maladjustment.

POVERTY AND MEMBERSHIP IN A MINORITY ETHNIC GROUP

Being poor and being a member of a minority group are environmental stressors that may pose risks to children's mental health (116). Although it is important to recognize that most poor and minority individuals make health adjustments (116), the relationships between these environmental risk factors and poor social and psychological functioning is well recognized (15). In their 1981 review of the epidemiologic literature on the prevalence of mental disorders in children, for example, Gould, et al. (248), noted that children who were poor, black, or Spanish-speaking and living in an urban environment had mental health problems at rates greater than the 11.8 percent found in U.S. communities on average. Although the relationships are correlational rather than causal, increasing evidence about the effects of psychosocial stress on both physical and mental health supports the view that poverty and minority status pose risks for mental health (15). In addition, poverty and minority status are often accompanied by other risk factors, making children



Photo credit: New York Times/Peter Freed

Children who must live in shelters may be at increased risk of developing mental health problems as a result of adverse environmental factors such as poverty, unstable home life, and inadequate care.

exposed to other risk factors even more vulnerable to developing mental health problems.

The relationship of socioeconomic class and ethnicity to mental health takes on particularly great importance with evidence that poverty among children—especially among black and Hispanic children—has increased in recent years. A report prepared by the Congressional Research Service and the Congressional Budget Office indicates that in 1983 there were 13.8 million poor children in the United States (646). The report

notes that child poverty rates have increased sharply among black and Hispanic children. Currently, almost half of black children in the United States live in poverty, while less than 15 percent of nonblack children are poor (117). Being poor may also mean that children will not have access to health insurance. An estimated 15.9 million children and young adults (1- to 19-year-olds) were uninsured in 1977, the last year for which national data are available (661a).

PARENTAL PSYCHOPATHOLOGY

In most children's development, the family plays a crucial role. It is perhaps not surprising, therefore, that the presence in the family of a parent with psychopathology increases a child's risk of experiencing emotional and behavioral difficulties. Some of the difficulties that the children of mentally ill parents may develop meet the criteria for standard DSM-III psychiatric diagnoses; other difficulties, however, are general impairments in children's social, emotional, or cognitive functioning that do not meet the standard criteria for diagnosable mental disorders. The relative contribution of genetic and environmental factors in causing the emotional and behavioral difficulties of children with mentally ill parents is not clear. Nonetheless, the occurrence of mental illness in a parent constitutes a significant risk factor to a child's psychological well-being.

Affectively Disordered Parent

The development of children who have a parent with an affective disorder, such as depression or manic-depressive illness, has been a focus of much research. Evidence about the incidence of affective disorders within families indicates that 10 to 40 percent of the immediate relatives of affectively disordered individuals also develop such disorders (225,315,501,613,713). There is growing awareness that children can manifest the symptoms of affective illness; although manic-depression is found infrequently in children and young adolescents, depression does exist during childhood (95).

Considering the effects of affectively disordered parents on their children is important, because affective disorders—particularly depression—are the major form of psychopathology to which children are exposed. The incidence of diagnosable depression in adult women has been estimated at 1 to 8 percent (70), and an even higher proportion (20 to 25 percent) are estimated to manifest marked, untreated depressive symptoms (69). Further, the presence of infants and young children in the home increases the risk for depression in adult women (45,695).

In children of affectively ill parents, DSM-III disorders as diverse as depression, separation anxiety, attention deficit disorder, personality disturbances, and conduct disorder have been identified (371,560,697). The overall prevalence of diagnosable mental disorders in these children has been found to be in the vicinity of 40 percent (428,467,477). Although the rates found in various studies are not directly comparable (because of the use of different diagnostic criteria), the similar direction of results confirms that the children of affectively ill parents have a higher incidence of depression and other problems than the children of normal parents.

Parental depression and mania seem to have a particularly marked effect on cognitive and emotional development during infancy and early childhood (115,218,571,696,725). Studies comparing the effects of maternal depression with those of schizophrenia (572), and the effects of maternal "psychological unavailability," often a result of

depression, with those of physical abuse and neglect (162) for example, indicate that a mother's affective illness has a particularly pathogenic effect on a child's early development. In one study, children of psychologically unavailable mothers evidenced striking declines in functioning in every important area of development from birth to 2 years (162). As a group, these children appeared even more impaired than children exposed to physical abuse and neglect.

In middle childhood, children of affectively disordered parents often experience difficulty in important developmental tasks. Such children have been found to exhibit problems in meeting norms of school and classroom behavior (192,688); poor academic performance (550,551); and difficulty with peers, especially in terms of aggressive behavior (689).

As adolescents, the children of affectively disordered parents often experience difficulties that are more severe than those of other children. Garmezy and Devine (221) found, for example, that children of depressed mothers drop out of junior high school at more than twice the rate of controls (22 v. 10 percent).

Studies of children of parents with affective impairments have looked almost exclusively at mothers; therefore it is difficult to draw conclusions about children of fathers with affective impairments.

Schizophrenic Parent

A parent with schizophrenia, a debilitating and often chronic mental disorder, places a child at serious risk for developing mental health problems. Persons who are schizophrenic are plagued by hallucinations, delusions, or other thought disturbances. Children of schizophrenic parents have been shown to have a risk of developing schizophrenia 10 times greater than that of the offspring of nonschizophrenic parents (246). In general, these children also have more difficulties during childhood than do children of nonschizophrenic parents (682). This observation holds true even in the case of children who have not spent the majority of their childhoods living with the schizophrenic parent.

Prior to birth, the children of a schizophrenic mother may already have experienced more adverse circumstances than the children of nonschizophrenic mothers. The pregnancies and deliveries of schizophrenic mothers are more frequently accompanied by complications than those of nonschizophrenic mothers (430,431,571,720), and such complications are frequently related to children's developmental problems. Some researchers have found the increased pregnancy and birth complications of schizophrenic mothers to be associated with the low socioeconomic status that often accompanies schizophrenia (571), while others have found them to be independent (720).

In infancy and early childhood, children of a schizophrenic parent often exhibit a number of mental health difficulties. Such children often score lower than other children on measures of cognitive, linguistic, and psychomotor functioning, and they evidence deficiencies in adaptive behavior and emotional attachment (571). These problems can be exacerbated by the severity and chronicity of the illness and the low socioeconomic status typically associated with schizophrenia (571,572).

During the preschool and early elementary school years, children of a schizophrenic parent generally do not exhibit severe behavior problems. During middle childhood, however, evidence of serious social and academic difficulties emerge when these children are compared to the children of nonschizophrenic parents. Children of schizophrenics are rated by teachers and by peers as less competent than other children (550). These lower ratings of competence seem to stem from a perception of these children as more aggressive, impulsive, and disruptive (431,687). Furthermore, children of schizophrenics seem to have serious difficulties in terms of intellectual functioning. In comparison to the children of nonschizophrenic parents, they tend to have lower grades (551), lower IQ scores (431,460,717), and less scholastic motivation (316). In addition, these children have been found to exhibit more attentional dysfunction (460), more emotional instability (316,683), and a greater amount of psychological disturbance in general (718).

In most studies on the development of children of schizophrenics, subjects have not yet reached the age at which schizophrenia becomes manifest (i.e., the early twenties). Nonetheless, they already appear vulnerable. Although epidemiologic research suggests that only 10 percent of the children of schizophrenics themselves develop schizophrenia in adulthood, one study found that 75 percent of these high-risk children develop some form of psychiatric disturbance (295).

The relative contributions of genetic and environmental factors in schizophrenia are not known. It is also unclear whether the negative psychological impact of having a schizophrenic parent is due to the features of the disorder, to factors related to mental illness generally (e.g., severity and chronicity), or to the lower socioeconomic status that usually accompanies this major form of psychopathology.

Alcoholic Parent

Alcoholism is one of our Nation's most serious health problems (648,581), and the prevalence of alcoholism and alcohol abuse among adult men and women (up to 15 percent) suggests that parental alcoholism is one of the most common hazards to children's mental health. Abuse of illegal drugs by parents has also been implicated in the etiology of drug abuse by children (668a), but has not been subject to as much analysis as has parental alcohol abuse.

Approximately 6.6 million children under the age of 18 in the United States are estimated to have an alcoholic parent (559). That alcoholism may have serious negative effects on child-rearing and family relations is suggested by the well-documented harmful consequences of alcoholism to health, productivity, and other aspects of adult functioning (see 648). Alcoholism can disable parents from caring for their children effectively, and

it is associated with a number of other family problems that place children at risk of mental illness. Such problems include family disorganization and divorce, violence, and life changes such as job loss and frequent moves.

One of the earliest consequences of parental alcoholism is the exposure of the fetus to alcohol (1). Evidence suggests that alcoholic mothers have increased risk of complications in pregnancy and of having children who develop health problems such as physical anomalies (e.g., heart defects) and disturbances to physical growth (165). Development of fetal alcohol syndrome, with a combination of birth defects, deficiency in growth, and deficits in development, is rare (165), but the development of fetal alcohol effects maybe more common.

The disinhibiting effect of alcohol suggests that alcoholism may be associated with child abuse, although literature examining this relationship is equivocal (165,166). Some researchers find increased prevalence of alcoholism among child abusers, others find no relationship, while still others find that psychosocial disorders in general, including alcoholism, are associated with child abuse.

Only a few studies have examined the effect of parental alcoholism on children's development, despite frequent clinical suggestions about the damaging effects of family alcoholism on a child's personality and family relationships (685). Some studies have identified children of alcoholics as more susceptible than other children to a range of psychological, educational, and social problems including "emotional disturbance," hyperactivity, legal problems and drug abuse as adolescents, and a variety of behavioral problems and psychiatric disorders (165,166). However, it is difficult to rule out the possibility that related factors such as socioeconomic status or family disorganization are producing these effects.

MALTREATMENT

Recent estimates suggest that each year over 1 million children experience some type of maltreatment (662). "Maltreatment" includes physical in-

jury, sexual abuse, neglect and failure to provide, and emotional mistreatment. An estimated 100,000 to 200,000 children each year experience physi-

cal abuse, 60,000 to 100,000 experience sexual abuse, and over 700,000 children are neglected (57). Although there are no estimates of the prevalence of emotional maltreatment, it is logical to assume that emotional maltreatment accompanies other forms of maltreatment and that there is another unknown number of children who experience emotional maltreatment alone. Maltreated children are often exposed to more than one type of maltreatment (162,231,284). Furthermore, maltreatment often consists of more than a single episode; studies suggest that approximately half of maltreated children have experienced previous abuse (159,282,377,610,737).

Maltreatment has long been thought to constitute a significant risk factor for children's development. Recent clinical and empirical investigations of maltreated children substantiate this assumption. The quality of available research varies (see 3); however, the research suggests that maltreated children are at high risk for physical, cognitive, behavioral, and emotional difficulties. Recent research and theorizing about maltreatment, although inadequate (see 729), documents the cognitive and social-emotional problems of maltreated children.

Physical Abuse and Neglect

Physical abuse and neglect are believed to cause intellectual and cognitive deficits, specifically lowered IQ scores that are frequently in the mentally retarded range. Clinical investigations of physically maltreated infants and children report that large numbers of these children are functioning at diminished cognitive and intellectual levels. Research suggests that 33 to 57 percent of physically abused and neglected infants and children have IQ scores below 85 (168,413,416,448).

Physically abused and neglected infants have been shown to have diminished performance on IQ tests and other developmental measures compared to a retrospective control group (23,146, 194,256,366). Comparison group studies of the cognitive and academic functioning of preschoolers and older children have frequently found that abused and neglected children perform at significantly lower levels than similar, nonmaltreated children (39,194,212,302,344,502). However, most

of these studies are correlational, and it is possible that at least some children maybe targets of abuse because of cognitive deficits.

In early and middle childhood, maltreated children exhibit several signs of social and emotional maladjustment. As preschoolers, maltreated children exhibit more adjustment problems and behavioral symptoms indicative of pathology (163, 502). They are also described as more aggressive, especially in response to frustration (283). As school-aged children, they frequently have impaired self-concepts and display heightened levels of aggression, both with peers and in the classroom (66,302,534,535). There is also limited evidence of self-destructive behaviors in these children, including suicide attempts, threats and gestures, and self-mutilative behavior (255). Finally, in their interaction with adult strangers, maltreated children are found to be more dependent and imitative than other children, and to exhibit less motivation to shape their own lives and make their own decisions (2). It has been hypothesized that these tendencies negatively affect maltreated children's ability to cope with the important developmental tasks of entry into school and effective functioning in the classroom.

That physical abuse and neglect causes at least some such deficits in development is supported by studies that compared maltreated children to control groups that are similar on important demographic and socioeconomic variables. The use of a matched, nonmaltreated control group is particularly important, since abuse and neglect often occur in the context of other risk factors such as high-stress environments and reduced socioeconomic status (222,228,499). Studies using control groups suggest that maltreatment causes cognitive deficits, in terms of both performance on IQ tests and academic functioning in school.

Studies using comparison groups also substantiate clinical observations that a significant degree of social and emotional maladaptation results from a history of physical maltreatment. As infants and toddlers, physically maltreated children are often insecurely attached to their caregivers (162,584), a factor that has been related to social and emotional difficulties throughout early childhood (385,421,623). In interactions with caregivers, physically maltreated infants and toddlers

frequently exhibit withdrawal; inconsistency and unpredictability in affective communication; a lack of pleasure; indiscriminate attachment (214); and high levels of frustration, noncompliance, and aggression (162).

Although the relationship between cognitive performance and emotional difficulties in physically abused children is not clear, emotional and behavioral problems exhibited by maltreated children have been well documented. Clinical reports of physically maltreated infants and children describe a heterogeneous group of behavioral and emotional difficulties. These include severe anxiety, withdrawal, apathy in social interactions, and hypervigilance and "frozen watchfulness" in regard to the social environment (217,414,415,479, 634). In addition, these children are described as aggressive, oppositional, impulsive, provocative, and limit-testing (254,414,415). They exhibit a variety of other behavioral symptoms (e.g., hyperactivity, sleep disturbances, and socially inappropriate behavior), as well as significant sadness, low self-esteem, and self-deprecating behaviors (254,414,415).

Sexual Abuse

It has been estimated that 60,000 to 100,000 children are sexually abused in the United States every year (659), although some observers believe that available estimates probably represent only a small percentage of actual cases (18). This belief is supported by surveys of adults in which 15 to 34 percent report having been sexually victimized as children (191). In general, girls are sexually abused more frequently than boys, and the offender is often a family member, particularly a father or stepfather (122,191,453). Much less is known about the effects of sexual abuse on a child's mental health than is known about the effects of physical abuse and neglect. Nonetheless,

psychological and psychiatric literature strongly suggest that the experience of sexual victimization in childhood has serious deleterious psychological effects, both short and long term.

One study of the short-term effects of sexual abuse in children (12) found that all of the affected children and adolescents were symptomatic and in need of mental health attention. The degree of pathology ranged from mild to severe (e.g., anxiety and sleep disturbances, suicidal ideation, adjustment reactions, psychoses). In general, emotional disturbance was greater when the child was female, was unsupported by a close adult, had been molested by a father and/or by more than one relative, and had been genetically molested. Severity of disturbance was associated both with longstanding abuse that began in early childhood and with sexual abuse in adolescence, even if limited to only one incident.

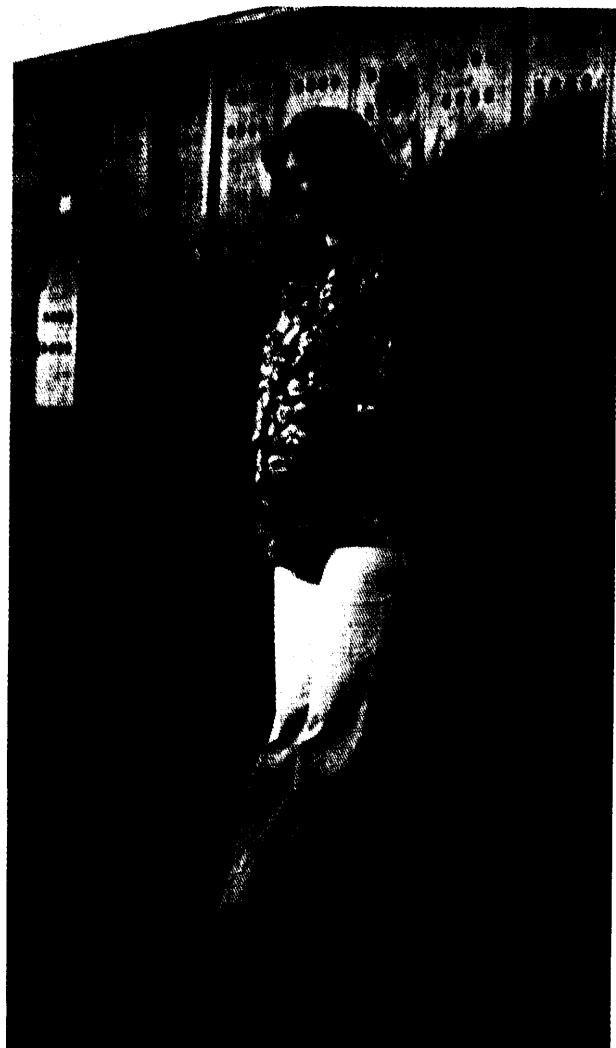
One review of the literature indicates that sexually abused children and adolescents suffer from problems with sexual adjustment, interpersonal relationships, and educational functioning (452). The review suggests that when no disclosure or effective intervention occurs, difficulties can persist into adulthood. The most prominent effects of child sexual abuse found in adult populations are disturbed self-esteem and an inability to develop trust in intimate relationships (191).

Unfortunately, available research does not allow us to determine the degree to which these emotional and other psychological difficulties are due to sexual abuse or to other factors in the environment. Features of sexual abuse that seem most strongly related to negative psychological impact include the nature of the offense, the degree to which the offender is known, the use of force, and the age of the offender (190,227,373). Increased public recognition of problems engendered by sexual abuse is leading to better identification of the psychological effects and implications for treatment.

TEENAGE PARENTING

Adolescent parenthood has received increasing attention in recent years as the perception of the frequency and magnitude of this phenomenon has

grown. Of the over 3 million live births that occur annually in the United States, approximately 600,000 are to adolescent girls between 15 and 19



m 6 m g w
9 g g

g 62 Add na n ma d
30 000 g nd ag 4 b m p gn an a h
wh m app m 36 p 0 800
g b h 558

T	ag	m	h	a	n	m	m	w
		n	m	a	and	du	na	
669	Ha	ad	n	m	h	d	n	m
p	h	gh	h	20	App	m	p	n
		n	g	m	h	b	m	p
			g	n	h	b	gnan	g a n d
g	h	a	w	ng	h	b	h	h d
nd	nag	p	gnan	m	k	am	ng	

adolescents from poor families (200). The vast majority of teenage mothers are unwed at the time of conception (465,726); in 1980 to 1981, only one-third of teenage mothers were married before the birth of their first child (466). The proportion of children born to unwed mothers has doubled since the early 1960s, and unwed mothers today are less likely to marry after the birth of a child than were unwed mothers in prior decades (466). The unwed mothers who do marry are more likely to divorce (213,393,578).

Teenage pregnancy and childbearing are associated with heightened medical risks to both mother and child. In girls younger than 15 years, in particular, there is a reduced likelihood of receiving adequate prenatal care, and an increased probability of morbidity and mortality in the offspring and toxemia in the mother (76,446,558). Offspring of teenage mothers have a greater probability of being premature and of low birthweight than those born to older mothers (427). In addition, there is an increased incidence of neurological abnormalities in the infants of teenage mothers (73,123,188). Teenage mother-infant dyads are characterized by less than optimal behaviors; these are often found to be associated with lower scores on tests of the infant's motor and mental development (183,409,573).

Cognitive deficits and diminished academic performance have been found in the preschool and school-aged children of teenage mothers. Children born to teenage mothers have been found to perform more poorly than other children on standardized IQ and achievement tests and on assessments of preparation for school (52,213,409). In one study, first-grade children who were born to adolescents were rated by their teachers as "less likely to adapt to school," a variable that correlates strongly with psychiatric symptoms in the teenage years (339).

In assessing the impact of low parental age on children's development, it is important to note the influence of other environmental factors. The most important of these are low socioeconomic status and marital instability. Both social disadvantage and marital instability have powerful effects on the development of children, independent of the effects attributable to maternal age.

Substantial evidence suggests that many of the negative effects of teenage parenting are only minimally related to the mother's age at birth, and are instead a function of the parent's reduced educational achievement and low socioeconomic status (35). Adolescent mothers have been found to have relatively limited knowledge and unrealistic expectations about child development (142). Some research indicates an association between

adolescent parenting and child abuse (401,608, 617). In general, better outcomes on a range of indicators (e.g., cognitive skills) are found for adolescent mothers and their children who are receiving more support either from the children's father or from the mother's family compared with those in which the mother is the sole, full-time caretaker (213).

PREMATURE BIRTH AND LOW BIRTHWEIGHT

Premature birth (defined as gestational age of less than 37 weeks) and low birthweight (weight less than 2,500 grams) have potentially broad effects on mental health functioning. The incidence of prematurity is higher among infants born to mothers of low socioeconomic status than among other infants (478,541) and is approximately 10 percent for white infants and 20 percent for black infants (403).

The strong association of socioeconomic status and race with prematurity and low birthweight is probably due in part to the association of these variables with other important factors affecting neonatal status—e.g., the age of the mother, the mother's previous pregnancy history, and the availability of prenatal care for mother and infant (391). Given the associations between preterm birth and social and economic circumstances, it is often difficult to separate the effects of prematurity from effects related to the correlates of premature birth (e.g., social and economic circumstances and other illnesses in the child). Moreover, the developmental outcome of premature infants is being affected by medical advances that increase the survival rate of smaller and younger infants (210).

At present, prematurely born infants are likely to experience some difficulties in several domains of functioning, including social, environmental, linguistic, physical, and cognitive areas. One of the earliest difficulties to appear is disturbed interactions between mothers and preterm infants. These disturbances constitute a pattern of the infant showing less responsiveness, less positive affect, and more aversion behaviors than full-term infants and the mother showing more than the



Photo credit: March of Dimes

Premature birth and low birthweight have potentially broad effects on mental health functioning.

usual degree of activity and stimulating behaviors (80,130,145,179,180,181,182). This imbalance frequently results in a vicious cycle, as increased activity on the part of the mother leads to less infant responsiveness, and this, in turn, results in more active maternal behavior. In general, pre-

term infant-mother dyads have fewer positive interactions than their full-term counterparts, and this difference may increase over the first year of life (130). In normal populations, the quality of early social interactions has frequently been associated with both early and late social, emotional, and cognitive competence. Similarly, it has been found that the less optimal social interactions experienced by preterm infants are related to poorer social, emotional, and cognitive functioning in early childhood (46,181,186,642).

The incidence of the most severe problems associated with premature birth—e.g., cerebral palsy, severe mental retardation, brain damage, epilepsy, and vision and hearing defects (99)—has declined over the last few decades because of improved prenatal monitoring and medical technology (see 635). Nevertheless, infants and children born prematurely are found to display poorer outcomes than full-term infants and children on a variety of developmental indices. Preterm infants have been found to perform more poorly than full-term infants on measures of cognitive, language, and motor development in infancy, including an early assessment of IQ known as the Bayley Scales of Infant Development (80,84,130,185,195). These problems are especially common in preterm infants of very low birthweight (i.e., less than 1,500 grams). Similarly, toddlers and preschoolers born prematurely tend to perform at lower levels than full-term toddlers and children on tests of cognitive competence (184,185,195,307,607,642). Again, these differences are much more marked for those born at very low birthweights. In addition to exhibiting lowered cognitive competence, preschoolers born prematurely have been found to display more behavioral symptoms suggestive of minimal brain dysfunction

(e.g., hyperactivity, distractibility, short attention span, irritability, impulsiveness, specific fears, and unclear speech); less social maturity; and inferior language production (184,185,186,642).

For many children born prematurely, developmental delays shown in infancy and early childhood are mild and decrease with age. Some effects of prematurity, however, do not fully emerge until the school-age years. These effects frequently take the form of specific cognitive deficits in terms of visuomotor and other perceptual-motor skills (100,307,607). Patterns of specific impairment in perceptual-motor functioning (in the context of normal language performance) are suggestive of learning disabilities (607). In general, children born prematurely have been observed to show poorer school performance than other children (124,140,204,273), although recent research suggests that these differences in long-term outcome may be more related to socioeconomic status than to prematurity (138,148).

In samples of abused and neglected infants and children, preterms are frequently overrepresented (34,168,199,355,583). To the extent that preterms are in greater danger of being abused, they are at risk for experiencing cognitive, social, and emotional difficulties associated with maltreatment detailed above. The cause of the relationship between prematurity and maltreatment is unclear. Factors in the infant, the parent, and the environment, as well as the effects of early separation of preterm infants from their parents, have all been suggested as leading to abuse. It seems likely, however, that none of these factors alone explains the link between prematurity and child maltreatment and, instead, that each contributes to produce a cumulative effect (417).

PARENTAL DIVORCE

Parental divorce can have serious consequences for children's mental health and has increasingly been recognized as an important mental health risk factor. The increasing recognition of its effects is not surprising, given recent increases in the numbers of children under 18 who are living in single-parent households, usually as a result of

parental separation or divorce. From 1970 to 1981, the percentage of single-parent families in the United States increased from 12 to 20 percent of households (652). Furthermore, recent estimates suggest that nearly half of the children born in the 1970s and 1980s will spend a portion of their childhood living in a single-parent home (236).

The initial period following separation or divorce is one of severe stress and disorganization for the entire family. During this time, children often exhibit a variety of behavior problems, including oppositional, aggressive behavior (291, 292,293); and depressive reactions and developmental delays (676,677,678,679,680). These problems often occur in children who have had no prior history of psychological difficulty or treatment. Moreover, the problems extend into many parts of children's lives—family relationships, school functioning and academic performance, and relationships with friends. Children from divorced families are more likely than intact-family children to have been referred for psychological treatment (28,265). In addition, children from divorced families have been found to score significantly lower on IQ tests (292), evidence poorer work styles (288), and demonstrate generally lower academic and classroom competence (265).

Many studies report that the various behavior problems exhibited by children immediately af-

ter divorce tend to abate without treatment in the 2 years following divorce, especially among girls (294). However, this outcome varies and seems to be related to several mediating variables such as the amount of parental conflict after the divorce. One recent study, using a large, randomly selected sample of children, found that the effects of divorce did not evaporate after 1 to 2 years (266). When compared with intact-family children, children from divorced households (particularly boys) were found to experience a variety of academic, social, mental health, and physical health problems even 5 to 6 years after divorce.

Factors that can either accentuate or ameliorate the negative effects of divorce include the child's relationship with the noncustodial parent, parent adjustment, parents' postdivorce relationship, the child's predivorce adjustment and temperament, the sex and age of the child, and extrafamilial support systems (28). Research varies in the degree to which it has successfully separated the impact of divorce from the impact of other mediating variables (28,169,265,294,370).

MAJOR PHYSICAL ILLNESS

As a result of improvements in the quality of medical treatment, many more children with major or chronic illnesses are surviving today who in the past would have died. Although not strictly environmental factors, major physical illnesses are stressful experiences that affect mental health. Chronic diseases that children are now living with and that have demonstrated effects on mental health include cancer (364), cystic fibrosis (151), and chronic renal failure (705). Burn or accident victims and children with congenital abnormalities are also afflicted with mental health problems. Chronic medical conditions that lead to relatively little physical disability, such as epilepsy and diabetes, are also of concern in this context, because these chronic conditions can frequently have greater emotional consequences than conditions which are medically more threatening.

In recent years, it has been recognized that the experience of a major or chronic illness involves complicated psychological and social stresses. Several surveys have found that chronically ill

children are at greater risk for developing behavioral or emotional problems than are healthy children (74,425,511,593), although such effects have not been found for all categories of chronic disease (155,633).

The diagnosis of a serious childhood illness can have devastating psychological effects on children and families, even where survival rates and other treatment prospects are good. Children face anxiety over the cause of the illness, its course and prognosis, and the threat it presents to the integrity of their body. They often develop feelings that they are defective and different from their friends, and react with shame and lowered self-esteem. To manage the disturbing feelings, they may deny their illness or develop a sense that parts of their body are alien and separate from themselves, which makes it more difficult to face the reality of their illness (32).

A second source of stress is the effect of the condition itself (705). Experiencing constant pain or

severe physical limitations is extremely stressful. Furthermore, a medical condition can limit children's functioning in areas that are especially critical to their stage of development (423,705). Prolonged confinement to bed, for example, interferes with young children's developmental need for movement to explore the world and test their abilities.

An additional source of stress faced by chronically ill children is the difficulty of undergoing diagnosis and treatment. Many techniques used to diagnose and treat illness are uncomfortable, painful, immobilizing, or defacing. Needles to draw blood, biopsies, radioisotopic preparations, and other diagnostic procedures are often more frightening and painful to children than the slow course of a disease. Many treatments of severe diseases (e.g., chemotherapy or radiation therapy) have painful and debilitating side effects. Treatments such as dialysis, which must be continued indefinitely, place enormous psychological demands on children. Furthermore, treatment often forces children to spend long periods of time in a hospital, separated from their parents and friends.

For some children, the greatest stress arises after they return from the hospital. Anxiety remains about the risk that their illness will recur, their body integrity, and their ongoing chances for survival. For children with some conditions, stress is increased because not much is known about their prognosis other than that they are at increased risk for having another episode of the disease (364). Children with major and chronic illnesses may have physical impairment remaining from their illness or from invasive treatment of the illness—either concrete disabilities such as the loss of a limb or more unpredictable problems such as suppression of the immune system. Ongoing treatment regimens, which often involve frequent medication or other treatment, disrupt normal school, peer, and family activities of children. Treatment often continues to be painful or lead to physical changes. Children must rejoin their classroom and peer groups while still coping with the feeling that they are different and,

in many cases, appearing different from other children. The siblings of a sick child may also suffer psychologically because of the illness; they often experience guilt over being well while their brother or sister is ill and jealousy over all the resources and attention devoted to the sick one (152,154, 364). Medical conditions and treatments also interfere directly with children's development, so that they may fall behind in intellectual, emotional, and social development.

The requirements of managing a chronic illness often conflict with the developmental or psychological needs of children. For example, chronic illness forces adolescents to be more dependent on their parents at a time when they need to develop independence. It may lead children to feel both responsible for what happens in the family and guilty over the family's distress. Often the family exacerbates these problems by being overprotective. In general, normal development is made more difficult, because illness necessarily places children in a more dependent, child-like position. Children's prospects for the future can be diminished, partly because their illness impairs their abilities, but also because of prejudice against them in school or at jobs. There is also often prejudice against recovered patients who try to obtain life and health insurance. Several studies have found consequences for adaptation, especially in social relationships, for adults who have had a chronic childhood medical condition (71,237,474). An additional complication is that mental and physical health are closely intertwined; emotional or behavioral problems often exacerbate physical problems. This is true for almost any disease, but especially so for conditions such as asthma in which emotional arousal can stimulate physical symptoms.

Success in coping with a chronic medical condition seems to be related to such factors as the specific course of the medical illness (when it occurs in life, how long it lasts, number of relapses, etc.) and the ability of the family, physician, and others to be supportive (364).

CONCLUSION

A number of biological and psychosocial factors can pose risks to children's mental health. This chapter has examined a number of the more severe environmental risk factors for children—poverty, minority ethnic status, parental psychopathology, physical or other maltreatment, a teenage parent, premature birth and low birth-weight, parental divorce, and serious childhood illness. The evidence on many of these factors and their direct relation to children's mental health problems is sometimes unclear, primarily because children exposed to one risk factor may be exposed to others as well.

Consideration of environmental risk factors is important to an examination of children's men-

tal health problems and services. As is acknowledged in diagnostic manuals such as DSM-III, knowledge of a child's physical health status and psychosocial environment is important to developing an effective mental health treatment plan. For policy purposes, it can be important to know that children's mental health problems are not limited to mental disorders, and that it may be possible to prevent development of some mental health problems by reducing certain risk factors (e.g., poverty) and ameliorating the effects of others.