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CHILDREN AND DEPRESSION

The Children of Depressed Parents; The Childhood of Depressed Patients; Depression in Children

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SUMMARY

In order to understand the development of depression in children, three types of data are reviewed: (1) studies of the children of depressed parents; (2) studies of the childhood histories of depressed adults; (3) direct studies of depression in children. These data support an increased frequency of depression and other psychopathology in the children of depressed adults. An examination of the homes of children with a depressed parent reveals a disruptive, hostile, and rejecting environment. This atmosphere is also found in the homes of depressed children and in the homes of children who become depressed as adults. Methodological issues are discussed which will help sort out the relative influences of genes and environment in future studies.

INTRODUCTION

Children raised by an emotionally disturbed parent tend to manifest higher levels of psychopathology than expected both during childhood and later in adult life (Rice et al. 1971; Landau et al. 1972). Explanations for this phenomenon range from a genetic predisposition to inappropriate child-rearing. Studies which have investigated the parents of adult psychiatric patients have generally assumed that the behavior of these parents was pathological and was responsible for the emotional maladjustment of their

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offspring (Lidz et al. 1957; Sanua 1961; Cheek 1965; Gardner 1967). Prospectively studied children of psychiatrically ill parents have been found to exhibit disturbances in behavioral, cognitive, and neurological functioning (Fish and Alpert 1962; Fish and Hagin 1973; Garmezy 1974; Gunderson et al. 1974; Marcus 1974; Mednick et al. 1974).

Although most investigators of the relationship between parental psychopathology and child development have concentrated on the children of schizophrenic parents, there is indirect evidence that depression in a parent can have quite a serious impact on children. This impact may be environmentally induced due in part to the recurring nature of depression and its tendency to disrupt family functioning (Rutter 1966), and the fact that most treatment for depression is ambulatory, so that the depressed parent is in the home, often caring for children during the acute episode (Weissman et al. 1972). Definitive data from adoption and cross-fostering studies are not yet available to determine the role of genetic factors in the etiology of depression, and no single mode of inheritance has been clearly found to be associated with any subtype of depressive disorders (Kidd and Weissman 1978). While the higher concordance rates for depression found for monozygotic twins compared to dizygotic twins are consistent with a genetic hypothesis (Dorzab et al. 1971), the higher morbid risk rates of depression found in the adult first degree relatives of depressive probands are compatible with either a genetic or an environmental explanation. Whether the cause is environmental or genetic, or more likely, some combination, there is reason to believe that the offspring of depressed parents have an increased risk of psychiatric disorder.

This paper will review the data relevant to a study of the offspring of depressives. Because of the paucity of studies directly dealing with these children, indirect but related sources of data will also be examined. Three categories of research are reviewed: (1) studies of children of depressed parents, to evaluate effects of the parents' disorder on their children; (2) studies of the childhood histories of depressed adults, to determine the impact of a depressed parent on the onset of psychopathology in their offspring when these offspring are adults; and (3) studies of depression in children, to understand the problems of diagnosis and assessment in children [1].

THE CHILDREN OF DEPRESSED PARENTS

Only a small number of studies have investigated the effects of depressed parents on the behavior of their children. Of the five studies reviewed in Table 1, those by Weissman et al. (1972), Rolf and Garmezy (1974), Weintraub et al. (1975), and Welner et al. (1977) present data separately for the offspring of depressed parents. In the study by Gamer et al. (1977), the data reported compared the children of psychotic parents (including depressive

[1] Throughout this paper, where statistically significant differences are noted, the values reported were at the 0.05 level or better.

TABLE 1

STUDIES ON THE CHILDREN OF DEPRESSED PATIENTS

	Weismann et al. (1972) N	Rolf and Garmezy (1974) N	Weintraub et al. (1975) N	Welner et al. (1977) N	Gamer et al. (1977) N
Composition of groups					
Children of:					
Depressives	109	28	43	75	8
Schizophrenics		31	58		13
Controls		236	114	152	21
Parents:					
Depressives	35	28	17	29	8
Schizophrenics		31	25		13
Controls	27	236	114	41	21
Age of children	$\overline{X}$ = 11 yr.	$\overline{X}$ = 10 yr.	5—15 Yr.	6—16 yr.	$\overline{X}$ = 37 mo.
Source of information					
Parent interview	X		X	X	
Child interview			X	X	
School (teachers, peers)		X	X		
Records (clinic)	X				
Psychological testing of children			X		X
Findings about children [a]					
Depressive symptoms	X [b]	NA [c]	NA	X	NA
Interpersonal problems	X	X	X	X	NA
Acting-out	X	NA	X	X	NA
School difficulties	X	X	X	NA	NA
Attentional disturbances	NA	NA	X	NA	X

[a] Includes those problems found to be present to a significantly greater extent in children of emotionally disturbed parents than children of well parents.

[b] In the Weissman et al. study, the problems were present in a majority of the children studies. Partial group comparisons reported in Weissman and Siegel (1972).

[c] NA not ascertained.

parents) to the children of 'well' parents.

The studies reviewed in Table 1 varied considerably in their purpose and in their methodology. They did, however, provide support for the expectation that children with a depressive parent are more likely to evidence some form of psychopathology than the children of normal parents. Rolf and Garmezy (1974), for example, found more withdrawn, shy, and socially isolated behavior for their 'target' children, especially for the children of depressive mothers, than for control children. Weintraub et al. (1975) noted higher levels of classroom disturbance, impatience, disrespectful or defiant behavior, inattentiveness and withdrawal, and lower levels of comprehension, creativity, and relatedness to teacher for both the children of schizophrenic mothers and the children of depressed mothers than for their control counterparts. Gamer et al. (1977) found the children of psychiatrically ill parents to have disturbances in attention, particularly when dealing with complex tasks. Welner et al. (1977) found that problems such as depressed mood, death wishes, fighting, psychosomatic concerns and anhedonia were significantly more common in the children with a depressed parent than in the controls. They also noted that 11% of the children of depressives had 5 or more depressive symptoms, with 7% meeting the criteria for probable or definite depression, as compared with none in the control group.

With a somewhat different focus, Weissman et al. (1972) investigated the parental role performance of a group of 35 depressed women and a matched group of 27 normal women. They found the depressed women, during the acute episode, were less involved with children, had impaired communication, increased friction, lack of affection, and greater guilt and resentment. With their children they were more often overprotective, irritable, preoccupied, withdrawn, emotionally distant and/or rejecting. Disturbed functioning in the children of these depressed mothers was noted in approximately 58% of the 109 children. This proportion was even larger (64%) when only those children at early adolescence or younger were considered. The children's problems included hyperactivity, enuresis, depression, school problems, truancy, drug abuse, and delinquency.

Although we know that the adult relatives of depressed probands also have a higher incidence of depression, we do not know whether this group represents the 'same' individuals at an earlier stage of life or whether the children in the studies reviewed constitute an entirely different population. This question cannot be answered, since longitudinal data on the children of depressives is unavailable at this time. However, the findings of the next group of studies, the childhood of adult depressed patients, offers support for the possibility that the two groups contain the same individuals at different ages.

THE CHILDHOOD OF DEPRESSIVES

Although retrospective studies are particularly prone to methodological difficulties, ranging from sampling biases to unsystematically collected data

or unreliable data distorted by memory, they can be useful for hypothesis generating. Probably the most studied question in this category is the effects of childhood bereavement in the development of adult psychopathology. The number of studies on this issue is so numerous that a comprehensive review of the literature is beyond the scope of this paper; the majority of investigators have reported a significantly higher incidence of early parental death in the histories of depressed patients (Beck et al. 1963; Forrest et al. 1965; Brown 1966; Dennehy 1966; Gay and Tonge 1967; Hill and Prince 1967; Birtchnell 1970).

In a critical review of bereavement studies, Pitts et al. (1965) suggest that inadequate attention has been given to such factors as appropriate sample selection and properly matched controls. In addition, Gregory (1966) has indicated a lack of accurate actuarial estimates for determining the expected frequency of parental deaths in the general population. Controlling for these factors, neither Pitts et al. nor Gregory found a relationship between early parental loss and adult depression. In a similar vein, Crook and Raskin (1975) did not find a relationship between the incidence of parental loss and

TABLE 2

STUDIES OF THE CHILDREN OF DEPRESSED PATIENTS

	Munro (1966) (*N*)	Perris (1966) (*N*)	Raskin et al. (1971) (*N*)	Jacobson et al. (1975) (*N*)
Composition of groups				
Depressives	153	150	548	461
Manic—depressives	—	145	—	—
Controls	163	—	254	198
Age of subjects	16—60 yr	Not reported	16—60 yr	18—60 yr
Source of information				
Patient interview	X	X		X
Relative interview		X		X
Hospital records		X		
Patient self-reports			X	
Findings about childhood of depressed adults [a]				
Negative childrearing environment	NA [b]	X	X	X
Parental rejection	NA	NA	X	X
High rate of mental illness in parents	X	X	NA	X

[a] List includes characteristics most often noted regarding the childhood histories of depressed patients.

[b] NA not ascertained.

severity of depression in their patients. However, they did find an association between suicide attempters and parental loss due to marital discord and family interaction problems, in comparison to non-suicidal depressed patients and normal controls. In light of the criticisms and the often inconsistent results reported by investigators, no definitive statement can be made regarding the relationship between parental loss in childhood and later depression (Huston 1971).

Although less frequently examined, some attention has been focused on the parent—child relationship, family life, and family history of adult depressives. The four studies presented in Table 2 were among the few available which investigated the childhood of depressive patients. These retrospective studies are in general agreement with previous findings which suggested that psychiatric disorder in parents is associated with similar problems in their offspring. They also suggest that adult depressives were more likely to suffer in childhood from family discord, parental inattention, rejection, and abuse.

DEPRESSION IN CHILDREN

The presence and nature of depression in children is a controversial issue in psychiatry. Statements such as, 'The familar manifestations of adult, non-psychotic depression are virtually nonexistent in childhood' (Rie 1966) are not uncommon. Instead, theorists and clinicians have offered the terms 'masked depression' and 'depressive equivalents' as substitutes for a diagnosis of depression in children, alternatively describing their expression characterized by rebellion, temper tantrums, disobedience, school problems, hypochondriasis, and behavior that was destructive, irritable, hyperactive, and generally acting-out (Hollon 1970; Burks and Harrison 1962; Toolan 1962; Brandes 1971; Zal 1971; Lesse 1977). In agreement with these views, Anthony (1967), in his review of psychiatric disorders of childhood stated that, 'Psychoneurotic, depressive disorders involve internalized conflicts in relation to deeply ambivalent feelings and are not commonly seen in their fully developed adult form in children, although what have been referred to as 'depressive equivalents' may take the place of depression. . .' (p. 1403).

More recently, however, there has been some shift in thinking about the diagnosis of depression in childhood (Malmquist 1975). Depression is being reported as a frequent symptom in adolescent clinic patients (Evans 1975), and its expression is being examined in greater detail. Current studies are beginning to address some of the difficulties surrounding the evaluation of childhood depression, such as the problem of distinguishing between symptom and syndrome and the need to separate symptom clusters according to age, e.g., childhood vs. adolescent depression (Malmquist 1971). In the Isle of Wight study by Rutter et al. (1976b), for example, little diagnosable depression or suicide was noted in their pre-adolescent population. However, they did report finding many 14—15-year-olds with feelings of inner distress, self-depreciation, and suicidal ideation, although only a small number of chil-

dren actually were considered to be suffering from clinically significant depression (Rutter et al. 1976a).

Despite this increased attention, agreement on what constitutes the clinical picture of childhood depression has not yet been established. Table 3 summarizes the results of the more recent investigations of depression in children, particularly pre-adolescents. The studies which were reviewed concentrated upon empirical findings rather than theoretical formulations or case reports. Those which have been included were selected because of their efforts to deal with diagnostic questions in child assessment. This paper highlights some of the more salient issues surrounding research on the diagnosis of depression in children. For a more complete discussion of current approaches toward childhood depression the reader is referred to Shulterbrandt and Raskin (1977).

As shown (Table 3), the symptoms which were considered most characteristic of depression in the children evaluated were similar to those used to characterize the adult depressive syndrome, with the possible exception of accompanying aggressive or acting-out behavior and enuresis in the childhood pattern. Parallels between depression in children and adults were also found for treatment response and illness course. For example, of 8 children placed on an imipramine regimen by Puig-Antich et al. (1979), 6 were found to respond positively, manifesting significant post-drug treatment improvement on all or most of their depressive symptoms. Poznanski and Zrull (1970) noted that depression in their children tended to be persistent and episodic in nature, a finding supported by their follow-up study (Poznanski et al. 1976) which suggested that depression in childhood was associated with similar ongoing disturbances in adolescence and early adulthood, except that the acting-out behavior was replaced by more withdrawn, passive behavior, greater interpersonal difficulties, and school performance problems.

In an effort to improve the diagnostic classification of depression, Cytryn and McKnew (1972) describe three types of depression in childhood. The type considered most common was termed masked depression, characterized by overt aggression, acting-out behavior, and the presence of nondepressive psychopathology in the family. Both the second and third types, termed acute depressive reaction and chronic depressive reaction of childhood, were typified by sadness, withdrawal, anxiety, vegetative disturbances, school problems, interpersonal difficulties, and suicidal ideation. Characteristics which distinguished the latter two groups, however, were a good premorbid adjustment, the presence of a precipitating event, and little family pathology in the acute depressive reaction category; the lack of a precipitant and the presence of chronic depression in at least one parent (usually the mother) in the chronic depression children. In that report and in a subsequent one (McKnew and Cytryn 1973), the authors stress the factor of a precipitant in the acute depression group and emphasize the importance of parental depression in the chronic depression of childhood group.

TABLE 3

STUDIES OF DEPRESSION IN CHILDREN

	Poznanski and Zrull (1970) (*N*)	Poznanski et al. (1976) (*N*)	Connell (1972) (*N*)	Cytryn and McKnew (1972) (*N*)	Brumback et al. (1977) (*N*)	Puig-Antich et al. (1979) (*N*)
Composition of groups						
Depressed children	14	10	20	37	42	13
Control children	—	—	12	—	30	—
Age of children	3—12 yr	12—23 yr	7—14 yr	6—12 yr	6—12 yr	6—12 yr
Source of information						
Parent interview	X	X	X	X	X	X
Child interview	X	X	X	X	X	X
Psychological testing	X		X	X	X	
School reports	X				X	
Findings about depression in children [a]						
Negative self-image	X	X	X	NA [c]	X	X
Crying	X	X	X	NA	X	X
Withdrawal	X	X	X	X	X	X
Interpersonal difficulties	NA	X	NA	X	X	X
Sleep/appetite disturbances	X	NA	X	X	X	X
Enuresis/encopresis	X	NA	X	NA	X	Not found
Suicidal ideation	X	NA	X	X	X	X
Somatic complaints	NA	NA	X	NA	X	X
School problems	X	X	NA	X	X	X
Acting-out	X	Not found	X	X	X	X
Findings about depressed children's parents [b]						
Parental psychopathology	X	X	X	X	X	X
Parental rejection	X	X	X	NA	NA	X
Family discord	X	X	NA	NA	NA	X

[a] List includes symptoms most often found to be associated with the depressive syndrome in childhood.
[b] List includes characteristics of the family of the depressed child.
[c] NA not ascertained.

Connell (1972), too, noted that his depressed children could be divided into two categories, those who had a precipitating event and those who manifested a long history of depression with no obvious precipitant. The latter group also had a higher incidence of depressive illness in their family. In fact, among the studies of depressed children that we reviewed, a family history of psychiatric illness was the most commonly reported finding. Brumback et al. (1977) found a history of affective disorder in 89% of the depressed children's families, including over 64% of the mothers as compared with 30% of the mothers in the nondepressed children group. Poznanski and Zrull (1970) noted the presence of a high rate of marital discord and parental depression in the families of depressed children, and describe many of the parents as rejecting, hostile, and suffering from various forms of personality problems. And finally, Puig-Antich et al. (1979) reveal serious family discord or mistreatment of children in 11 out of 13 cases and a family history of psychiatric disorder (depression, mania, alcoholism, or schizophrenia) in 61% of the relatives of their index children.

The studies reviewed above strongly suggest that depressive illness is present in (pre-adolescent and adolescent) children and that it can be reliably diagnosed on the basis of specific symptom clusters. Further support for the diagnosis of depression in childhood, similar to the adult depressive syndrome, has been reported by others (Kovacs et al. 1977; Welner et al. 1977). The studies discussed also demonstrate that the presence of a depressive parent and/or a positive family history of affective disorder, is strongly associated with depression in childhood, particularly when the depression is chronic and does not appear to have a clear-cut precipitant.

CONCLUSION

The studies reviewed have a number of methodological difficulties. For example, the true significance of reported *P* values was oftentimes unclear because of the many variables tested and the failure of researchers to indicate whether their *P* values were adjusted for multiple tests. Adequate control groups were not included in many of the studies. In the studies of the children of depressed patients and in the studies of depression in children different methods of assessment of children and adults were commonly used. In the studies of the childhood of depressed adults, the criteria for establishing the existence of a negative home environment and/or familial psychopathology were different across studies and were often unclear. In addition, these studies concentrated only on events in their subjects' early lives or on the characteristics of their parents, rather than on their patients' childhood personalities, school functioning, social interactions, or the presence of early interpersonal and behavioral disturbances.

Despite the limitations in the data the consistencies in the findings are quite remarkable and five conclusions can be drawn.

(1) Studies of depressed adults show that the relationships with their chil-

dren are disturbed and are characterized by disaffection, friction, and disengagement from the children by the depressed parent.

(2) Studies of the offspring of depressives indicate that behavioral disturbances are more common in the children of depressed parents than in the children of normal parents. In fact, the children of depressed parents cannot usually be distinguished from the children of schizophrenic parents on behavioral or attentional measures.

(3) Studies of the childhood of adult depressed patients demonstrate the reported presence of family discord, parental rejection, and a generally negative home environment, characterized by instability and disruption. These patients also report that their parents and/or family members were depressed or suffered from psychiatric disorders. These reports have frequently been corroborated by interviews with relatives of the probands.

(4) Studies of depression in children also show that the family home environment of depressed children is similar to that reported by adult depressed patients about their childhood homes. The depressed children's homes are characterized by family discord, parental rejection, a negative home environment, and an increased frequency of parental psychopathology, although it is unclear if the psychopathology is always depression. These data are usually obtained by interviews with both parents and children.

(5) Studies of depression in children indicate that childhood depression does occur, can be diagnosed, and may be similar in symptom pattern to the adult depressive syndrome.

In summary, whether information is obtained by interview or observation, directly from the depressed patient, the children of depressives, or depressed children, whether the information is from the relative or patient report, and whether the data are concerned with current or past behavior, certain consistencies are found. A disruptive, hostile and generally negative environment is associated with depression in the parent, in the home of depressed children, and in the home of children who become depressed as adults.

Future research directions

While these associations are consistent, no conclusions about etiology can be drawn. Many questions still remain unanswered and point to areas of future research. In particular, longitudinal studies of children at risk for depression would be useful. Such studies could provide information on the premorbid personality of the adult depressive before he/she becomes depressed. While some evidence exists regarding the persistence of childhood disturbances into adult life (Weiner 1975), no data are available on the later adult adjustment of the depressed child. A longitudinal investigation of the offspring of depressed patients might provide information on the preclinical symptoms of depression and might assess the extent to which these children are affected by their parents' disorder. Such research would address important questions with respect to vulnerability and possible developmental

differences between high and low risk children; it would hopefully lead to premorbid indicators of etiologic relevance to depression or depressive spectrum disorders. Such research might also suggest which personality and environmental factors lead to resistance against depression.

As summarized above, many previous studies suffered from methodological insufficiencies which need to be addressed in future research designs. Several of these are summarized as follows.

The need for controls. Any examination of the adjustment of children of depressives must have a reference point for comparison. Several control groups could be used: children of normal parents, children of parents who have a psychiatric disorder other than depression (to determine the specificity of depression), and children of a chronically medically ill, but not psychiatrically disturbed parent (to control for the disruptive effect on children of having an impaired parent). Ideally, all control groups should be used and should be comparable.

Diagnostic assessment. Careful attention should be given to the diagnostic criteria used to ensure both the accuracy of diagnoses of depression and other disorders and the absence of psychopathology in the normal adult control groups. Recently developed techniques such as the SADS-L, RDC (Spitzer et al. 1978), the Renard (L. Robins 1977, personal communication), and the Present State Examination (Wing et al. 1974), have improved diagnostic reliability and at least one of these should be incorporated.

Subtypes of parental depression. Attention should be given to the diagnostic subtype of parental depression; e.g., the children of bipolar and unipolar depressed parents should be studied separately because of the probability of genetic heterogeneity involved in affective disorders. In fact, the children of several distinct groups of depressed parents could be compared, such as children of bipolar depressives, severe unipolar depressives sufficiently severe to require hospitalization (Paykel et al. 1970), and less severe or mild unipolar depressives (i.e. never hospitalized).

Assessment of the children. A broad spectrum of the children's behavior should be assessed. Previously reported research suggests that the assessment should include the child's school performance (behavioral and academic), interpersonal relations (with peers, siblings, and parents), symptoms of depression (i.e., mood disturbance, sleep and appetite disturbances, withdrawal, suicidal ideation, crying), acting-out behavior, and general health. In all instances, standardized scales with tested reliability and some evidence of validity are now available (Orvaschel et al. 1979).

Assessment of the environment. Standardized assessments of home environment are also available (Weissman and Sholomskas 1979). These assessments should include attention to factors such as crowding, poverty, and noise as well as affective relationships between family members.

Assessing a genetic component. In any study of children at high risk for psychopathology, the a priori expectation is that both genetic and environmental factors are relevant to the behavior of the children. Therefore, the

study should be designed to evaluate each separately and to consider possible gene—environment interactions (Kidd and Matthysse 1978). Only two research designs can rigorously test whether genetic variation contributes to the disorder. Separation studies (e.g., adoptions, half-sibs reared apart) answer this question by severing all except the genetic connections between relatives. Genetic linkage studies test for non-independent transmission from parent to child of a trait, in this case the psychiatric disorder, and a known genetic variant (marker) that is usually etiologically unrelated to the trait. Non-independent transmission implicates some genetic factors, that are on the chromosomal segment near the marker, in the etiology of the disorder. Both separation and linkage studies are difficult, time-consuming, and expensive types of studies. Given only the assumption that some genetic factors may be involved, studies can be designed to provide information on the specific nature and relative magnitude of the genetic component. Though the analytic methodologies are complex (Kidd et al. 1978), the basic designs are simple; systematic study of the affected and *unaffected* relatives of patients.

In all cases where the gene product can be assumed to be considerably removed from the actual phenotypic expression of its associated trait, as is the case with psychiatric disorders, genetic heterogeneity must be considered. Therefore, attention should be given to the variables to be included in such a study so that more homogeneous groups can be defined. The specificity of psychiatric and psychosocial factors requiring attention have been discussed in detail previously. Biochemical measures (e.g. MAO, urinary MHPG) and/or drug responses of patients should also be considered as a means of defining more homogeneous groups. In addition, the importance of the family as the sampling unit cannot be overemphasized. All epidemiologic statistics can be estimated from family data and no genetic information can be obtained without family data.

Having given consideration to experimental design, the investigators must know what to expect from the data in order to apply appropriate analytic methodologies. The majority of the offspring of depressive parents will never suffer from an affective disorder, and from a genetic perspective many are not even at risk. Therefore, personality variables predictive of future pathology may not be significantly different between experimental and control children when only group means are compared. Instead, investigators should examine the distributions of the data for the groups. If, for example, the children of depressives showed a bimodal distribution on a number of variables, it might aid in identifying those children at genetic risk for psychopathology within that group. Alternatively, analyses designed to circumvent the problems raised by the possibility of heterogeneity are possible. Since within a family one expects greater homogeneity, a study of the joint distribution of a possible predisposing factor and illness can be studied in the relatives of those patients who have the factor being considered. A finding of an association in those families would indicate that the factor was one possible element in the etiology of the disorder. In other families, different causes may be found.

In both the collection and the analysis of data the sex of each individual must be considered. The higher rates of depression in women than men (Weissman and Klerman 1977) suggest different thresholds of vulnerability for the two sexes. Those different threshold levels for the sexes can give rise to marked numerical differences in the data if sex (of parent and child) is ignored (Kidd and Spence 1976). Whether or not there is a genetic component, studies incorporating the consideration of heterogeneity, sex differences, etc., are the only ones likely to give a greatly improved understanding of etiology.

Final comment

With improvements in methodologies, design and data analysis, it may become possible to distinguish between those behavioral disturbances which appear to be reactions by the child to family disruptions, and those symptoms of depression which seem to be more endogenous, recurrent, and less the product of external events. In conclusion, we agree with Becker (1974): 'Probably the best hope for clarifying the role of early environmental predisposers to depression would come from longitudinal studies of high risk families. . .' The children of depressives appear to qualify as a vulnerable group and are an appropriate place to start this line of investigation.

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REFERENCES

Anthony, E.J., Psychiatric disorders of childhood, Part 2 (Psychoneurotic, psychophysiological and personality disorders). In: A.M. Freedman and H.G. Kaplan (Eds.), Comprehensive Textbook of Psychiatry, Williams and Wilkins, Baltimore, MD, 1967, pp. 1387—1406.

Beck, A.T., Sethi, B.B. and Tuthill, R.W., Childhood bereavement and adult depression, Arch. gen. Psychiat., 9 (1963) 295—302.

Becker, J., Depression — Theory and Research, John Wiley, New York, NY, 1974.

Birtchnell, J., Early parent death and mental illness, Brit. J. Psychiat., 116 (1970) 281—288.

Brandes, N.S., A discussion of depression in children and adolescents, Clin. Pediat., 10 (1971) 470—475.

Brown, F., Childhood bereavement and subsequent psychiatric disorder, Brit. J. Psychiat., 112 (1966) 1035—1041.

Brumback, R.A., Dietz-Schmidt, S. and Weinberg, W.A., Depression in children referred

to an educational diagnostic center — Diagnosis and treatment and analysis of criteria and literature review, Dis. nerv. Syst., 38 (1977) 529—535.
Burks, H.L. and Harrison, S.I., Aggressive behavior as a means of avoiding depression, Amer. J. Orthopsychiat., 32 (1962) 416—422.
Cheek, F.E., The father of the schizophrenic, Arch. gen. Psychiat., 13 (1965) 336—345.
Connell, H.M., Depression in childhood, Child Psychiat. Human Develop., 4 (1972) 71—85.
Crook, T. and Raskin, A., The association of childhood parental loss with attempted suicide and depression, J. cons. clin. Psychol., 43 (1975) 277—282.
Cytryn, L. and McKnew, D.H., Proposed classification of childhood depression, Amer. J. Psychiat., 129 (1972) 149—155.
Dennehy, C., Childhood bereavement and psychiatric illness, Brit. J. Psychiat., 112 (1966) 1049—1069.
Dorzab, J., Baker, M., Cadoret, R.J. and Winokur, G., Depressive disease — Familial psychiatric illness. Amer. J. Psychiat., 127 (1971) 1128—1133.
Evans, J., Depression in adolescents, Proc. roy. Soc. Med., 68 (1975) 565—566.
Fish, B. and Alpert, M., Patterns of neurological development in infants born to schizophrenic mothers, Recent Adv. Biol. Psychiat., 5 (1962) 24—37.
Fish, B. and Hagin, R., Visual motor disorder in infants at risk for schizophrenia, Arch. gen. Psychiat., 28 (1973) 900—904.
Forrest A.D., Fraser, R.H. and Priest, R.G., Environmental factors in depressive illness, Brit. J. Psychiat., 111 (1965) 243—253.
Gamer, E., Gallant, D., Grunebaum, H.U. and Cohler, B.J., Children of psychotic mothers, Arch, gen. Psychiat., 34 (1977) 592—597.
Gardner, G.G., Role of maternal psychopathology in male and female schizophrenics, J. cons. Psychiat., 31 (1967) 411—413.
Garmezy, N., Children at risk: The search for the antecedents of schizophrenia, Part 2 (Ongoing research programs, issues, and intervention), Schizophrenia Bull., 9 (1974) 55—125.
Gay, M.J. and Tonge, W.L., The late effects of loss of parents in childhood, Brit. J. Psychiat., 113 (1967) 753—759.
Gregory, J., Retrospective data concerning childhood loss of a parent, Arch. gen. Psychiat., 15 (1966) 354—361.
Gunderson, J.G., Autry, J.H. and Mosher, L.R., Special report — Schizophrenia, 1973, Schizophrenia Bull., 9 (1974) 15—54.
Hill, D.W. and Prince, J.S., Childhood bereavement and adult depression, Brit. J. Psychiat., 113 (1967) 743—751.
Hollon, T.H., Poor school performance as a symptom of masked depression in children and adolescents, Amer. J. Psychother., 24 (1970) 258—263.
Huston, P.E., Neglected approach to cause and treatment of psychotic depression, Arch. gen. Psychiat., 24 (1971) 503—505.
Jacobson, S., Fasman, J. and DiMascio, A., Deprivation in the childhood of depressed women, J. nerv. ment. Dis., 166 (1975) 5—14.
Kidd, K.K. and Matthysse, S., with Carmelli, D., Cavalli-Sforza, L.L., Elston, R., Lange, K., Motulsky, A., Rao D.C., and Reich, T., Research designs for the study of gene—environment interactions in psychiatric disorders — Report of an FFRP Panel, Arch. gen. Psychiat., 35 (1978) 925—932.
Kidd, K.K. and Spence, M.A., Genetic analysis of pyloric stenosis suggesting a specific maternal effect, J. med. Genet., 13 (1976) 290—294.
Kidd, K.K. and Weissman, M.M., Why we do not yet understand the genetics of affective disorders. In: J. Cole, A.F. Schatzburg and S.H. Frazier (Eds.), Depression: Biology, Dynamics, and Treatment, Plenum Press, New York, NY, 1978, pp. 107—121.
Kovacs, M., Betof, N.G., Celebre, J.E., Mansheim, P.A., Petty, L.K. and Raynak, J.T., Childhood depression — Myth or clinical syndrome? Unpublished manuscript, 1977.

Landau, R., Harth, P., Othnay, N. and Sharfhertz, N., The influence of psychotic parents on their children's development, Amer. J. Psychiat., 129 (1972) 38—43.

Lesse, S., Masked depression and depressive equivalents, Psychopharmacol. Bull., 13 (1977) 68—70.

Lidz, T., Cornelison, A.R., Fleck, S. and Terry, D., The intrafamilial environment of the schizophrenic patients, Part 1 (The father), Psychiatry, 24 (1957) 246—265.

McKnew, D.H. and Cytryn, L., Historical background in children with affective disorders, Amer. J. Psychiat., 130 (1973) 1278—1280.

Malmquist, C.P., Depression in childhood and adolescence, New Engl. J. Med., 284 (1971) 887—893.

Malmquist, C.P., Depression in childhood. In: F.F. Flach and S.C. Draghi (Eds.), The Nature and Treatment of Depression, John Wiley, New York, NY, 1975.

Marcus, J., Cerebral functioning in the offspring of schizophrenics, Int. J. ment. Health. 3 (1974) 57—73.

Mednick, S.A., Schulsinger, F., Higgins, J. and Bell, B., Genetics, Environment, and Psychopathology, American Elsevier, Inc., New York, NY, 1974.

Munro, A., Some familial and social factors in depressive illness, Brit. J. Psychiat., 112 (1966) 429—441.

Orvaschel, H., Sholomkas, D. and Weissman, M.M., The assessment of psychopathology and behavioral problems in children — A review of scales suitable for epidemiological and clinical research (1967—1979). Final Progress Report to the Center for Epidemiologic Studies (Contract No. ADM 42-74-83 (DBE)), National Institute of Mental Health; Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) Rockville, MD, April, 1979.

Paykel, E.S., Klerman, G.K. and Prusoff, B.A., Treatment setting and clinical depression, Arch. gen. Psychiat., 22 (1970) 11—21.

Perris, C., A study of bipolar (manic—depressive) and unipolar recurrent depressive psychoses, Part 2 (Childhood environment and precipitating factors) Acta psychiat. scand., 42, Suppl. 194 (1966) 45—57.

Pitts, F.N., Meyers, J., Brooks, M. and Winokur, G., Adult psychiatric illness assessed for childhood parental loss, Amer. J. Psychiat., 121, Suppl. i—x, 1965.

Poznanski, E., Kraheneuhl, V. and Zrull, J.P., Childhood depression — A longitudinal perspective, J. Amer. Acad. Child Psychiat., 15 (1976) 491—501.

Poznanski, E. and Zrull, J.P., Childhood depression, Arch. gen. Psychiat., 23 (1970) 8—15.

Puig-Antich, J., Blau, S., Marz, N., Greenhill, L.L. and Chamber, W., Prepubertal major depressive disorders — A pilot study, J. Amer. Acad. Child Psychiat., 1979, in press.

Rice, E.P., Ekdohl, M.C. and Miller, L., Children of Mentally Ill Parents, Behavioral Publications, New York, NY, 1971.

Rie, H.E., Depression in childhood — A survey of some pertinent contributions, J. Amer. Acad. Child Psychiat., 5 (1966) 653—685.

Rolf, J.E. and Garmezy, N., The school performance of children vulnerable to behavior pathology. In: D.F. Ricks, T. Alexander and M. Roff (Eds.), Life History Research in Psychopathology, Vol. III, University of Minnesota Press, Minnesota, 1974.

Rutter, M., Children of Sick Parents — An Environmental and Psychiatric Study, Institute of Psychiatry (Maudsley Monographs No. 16), Oxford Press, London, 1966.

Rutter, M., Graham, P., Chadwick, O.F.D. and Yule, W., Adolescent turmoil — Fact or fiction? J. Child Psychol., 17 (1976a) 35—56.

Rutter, M., Tizard, J., Yule, W., Graham, P. and Whitmore, K., Research report — Isle of Wight studies, 1964—1974, Psychol. Med., 6 (1976b) 313—332.

Sanua, V.D., Sociocultural factors in families of schizophrenics. Psychiatry, 24 (1961) 246—265.

Schulterbrandt, J.G. and Raskin, A., Depression in Children — Diagnosis, Treatment, and Conceptual Models, Raven Press, New York, NY, 1977.

Spitzer, R.L., Endicott, J. and Robins, E., Research diagnostic criteria — Rationale and reliability, Arch. gen. Psychiat., 35 (1978) 773—782.

Toolan, J.M., Depression in children and adolescents, Amer. J. Orthopsychiat., 32 (1962) 404—414.

Weiner, I.B., Depression in adolescence. In: F.F. Flach and S.C. Draghi (Eds.), The Nature and Treatment of Depression, John Wiley and Sons, New York, NY, 1975.

Weintraub, S., Neale, J.M. and Liebert, D.E., Teacher ratings of children vulnerable to psychopathology, Amer. J. Orthopsychiat., 45 (1975) 839—845.

Weissman, M.M. and Klerman, G.L., Sex differences and the epidemiology of depression, Arch. gen. Psychiat., 34 (1977) 98—111.

Weissman, M.M., Paykel, E.S. and Klerman, G.L., The depressed woman as a mother, Social Psychiat., 7 (1972) 98—108.

Weissman, M.M. and Sholomskas, D., The assessment of social adjustment by the clinician, the patient, and the family. Chapter for: Quantitative Techniques for the Evaluation of the Behavior of Psychiatric Patients, In: S. Gershon, H. Van Praag and E. Usdin (Eds.), Biology of Behavior, Marcel Dekker, Inc., New York, NY, 1979, in press.

Weissman, M.M. and Siegel, R., The depressed woman and her rebellious adolescent, Social Casework, 53 (1972) 563—570.

Welner, Z., Welner, A., McCrary, M.D. and Leonard, M.A., Psychopathology in children of inpatients with depression — A controlled study, J. nerv. ment. Dis., 164 (1977) 408—413.

Wing, J.K., Cooper, J.E. and Sartorius, N., The Measurement and Classification of Psychiatric Symptoms, Cambridge University Press, London, 1974.

Zal, H.M., Adolescent depression — An overview, J. Amer. Osteopath. Ass., 71 (1971) 342—348.